GENERAL VIEW

OF THE

AGRICULTU

OF THE COUNTY OF

ESSEX.

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WITH OBSERVATIONS ON THE MEANS OF ITS IMPROV

BY MESSRS. GRIGGS,

OF HILL HOUSE, NEAR KELVEDON, IN ESSEX.

Gt Brit

DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULT
INTERNAL IMPROVEMENT.

LONDON:

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M.DCC.XCIV.

WEW

ADVERTISEMENT.

THE following valuable communication, respecting the
of husbandry in the county of Essex, and the means of i
ment, drawn up for the consideration of the Board of Ag
now printed, merely for the purpose of its being circulat
order that every person, interested in the welfare of that c
have it in his power to examine it fully before it is publi
therefore requested, that any remark, or additional observa
may occur to the reader, on the perusal of the following sh
written on the margin, and transmitted to the Board of Agric
Office in London, by whom the same shall be properly a
and, when the returns are completed, an account will be
the state of agriculture in Essex, from the information th
lated, which, it is believed, will be found greatly superior
of the kind, ever yet made public.

The Board has adopted the same plan, in regard to a
counties in the united kingdom; and, it is hardly neces
will be happy to give every assistance in its power, to any
may be desirous of improving his breed of cattle, sheep,
trying any useful experiment in husbandry.

TO THE READER.

:ed, that this paper may be returned to the Board of Agri-
e the first of March next.

ly necessary to add, that the Board does not consider itself
or any fact or observation contained in these reports, which,
e printed and circulated for the purpose merely of procuring
formation, and of enabling every one to contribute his mite,
wement of the country.

January, 1794.

INTRO-

INTRODUCTION.

DIMENSIONS.

THE COUNTY OF ESSEX is one of the maritime counties, extending from Weſt to Eaſt about ſixty, and from North to South about fifty miles, the boundaries of which are about two hundred and twenty-five miles; comprehending fourteen hundreds, and five ſmaller diſtricts called half hundreds, four hundred and three pariſhes, twenty-four market towns, about ſixty-two thouſand houſes, three hundred and twenty thouſand inhabitants, and one million two hundred and forty thouſand acres; and is bounded on the eaſt by the German ocean, on the weſt by the rivers Lea and Stort with a part of Hertfordſhire, on the north by the river Stour and part of Cambridgeſhire, and on the ſouth by the river Thames.

CLIMATE.

This county enjoys great advantages for all the purpoſes of agriculture. Its climate is mild; the face of it neither too flat, to retain the water longer than is neceſſary to promote vegetation, nor encumbered with mountains, to prevent the plough from going, almoſt wherever the farmer chooſes to drive it.

SOIL.

Every ſpecies of ſoil, from the moſt ſtubborn to the mildeſt loom, is to be found; nor is the county without a portion

portion of light gravelly land, or a good share of rich meadow and marsh ground, the major part of which, with management adapted to the different natures of it, is very productive. The near situation, the short and ready water carriage to the metropolis, and the inestimable treasures of chalk along the Kentish coast on the west and east parts, with the goodness of the roads, not only towards London, but in every direction throughout the county, insure a quick sale for every commodity, and enable the landholders to improve their farms with manure most congenial to their several soils.

INCLOSURES.

The inclosures, which from time immemorial have almost universally prevailed, make Essex greatly preferable to some of the neighbouring counties; here every man enjoys his own the year round, and accommodates his course of husbandry to the nature, size, and other casual circumstances of his farm; if his land is calculated for grazing, he can lay it down at his pleasure; or if he is unfortunate in a bad season, misses a plant, or has it destroyed by the worm, slug, or any other accident, he is at liberty to plough it up, and sow it again with some different corn, or to alter the rotation of crops as best suits his convenience; his ditches carry off the water from his land; and the thick hedges of white thorn, which grow upon the banks raised by what is thrown out of them, serve to shelter his stock from the storms of winter, as well as to protect his corn from the intrusion of cattle; and by dividing his land into distinct parcels, enable him to support twice the quantity of stock he could otherwise do; advantages an open country can never enjoy.

WATER.

WATER.

The greater part of Essex is also well watered, by the many brooks and rivers which run through its vales; nor is its air by any means so injurious to the health of its inhabitants, as has been universally reported. The two hundreds of Rochford and Dengey, called in reproach *The Hundreds of Essex*, so dreaded for their agues, are now, whatever they once might have been, not only the most fertile districts, but equally free from noxious vapours with any other parts of the coast.

WASTE LANDS.

Our waste lands, including the forests, may be estimated at full fifteen thousand acres; the greater part of which is as capable of producing corn, after a certain time for necessary improvements, as the adjoining lands, and would in most instances, it is presumed, be made profitable to the community, could some method, such for instance, as passing a general act of parliament, to ascertain the rights of the lords of manors, tithe owners, and the several tenants, which, it is thought, might be done, by proportioning the tenant's claim to the nature and extent, or annual value of his tenements, held of the manor to which the waste belongs, and then enable the lord, who is most frequently more enlightened, and better able to advance the various expences of inclosing, and other necessary improvements, to purchase these rights, as a jury should value them, and thus make it worth his while to erect farm houses and other conveniences, as, without some such power of purchasing, the wastes would be found in most places, too small to admit of as many divisions, as there would be claims given in, or the ground would be allotted to people, unable, from a want of experience, or property, to render their little portions of much service to the public, or to themselves. Or,

if this would be thought in any respect exceptionable, if the 29 of Geo. 2. c. 36. by which the lords of manors are enabled, with the consent of the major part in number and value of those who have right of common, to inclose wastes for the purposes of planting them with timber and underwood, were made general for all other purposes, it might, by degrees, have the same good effect.

SYSTEM OF FARMING.

With respect to the particular questions sent down from the board of agriculture, it may be observed, that no one general system of farming can prevail, over so large an extent, as this country, varying in so many essentials of soil and situation, terms of tenure, abilities and property of occupiers, &c. &c. &c. In the eastern part of it, the land is chiefly of a strong good staple, and, excepting the marshes, and here and there a small portion of meadow, is under the plough, and produces very considerable returns of every sort of grain and pulse. The most approved mode of treating the heavy land here, as in every other part of the county, is; to winter fallow it every third or fourth, and, in some parts, every second or third year, after which, in the eastern parts, oats or barley is sown, and the land laid down with clover, trefoil and rye grass, and having lain one year, is again broke up soon after Michaelmas, and wheat is sown; after which, if the land is clean and in good condition, the farmer takes a crop of beans, and then fallows again. The next rotation frequently is wheat, beans, well hoed, and then wheat again; on the lighter lands, are sown first turnips, for which, a fallow is always made, and the land manured. Barley sown with clover, &c. which is fed the ensuing year, succeeds the crop of turnips, then wheat, upon the clover lay, and after that peas; but where the clover fails, a circumstance not unusual, the land is considered unfit for wheat, and peas are sown in its stead.

Towards

Towards the middle of Eſſex, and the northern part bordering upon Suffolk, the ſoil varies conſiderably; ſome being light, with chalky clay or gravelly ſand, at a foot, or a foot and a half below the ſurface; other parts are moiſt and binding, affording a quick vegetation, and requiring conſtant attention in the ſummer months to prevent it exhauſting itſelf by a ſpontaneous produce; the plough is ſeen to occupy the larger part of this diſtrict, as little more meadow or old paſture grounds are found, than will ſupply hay and feed for the horſes on the farms, and feed for a few cows, kept for the purpoſe of ſuckling, and dry cattle and ſheep, which are principally bought in one year, and ſold out the next. Here, every common ſort of grain, pulſe, and artificial graſs is found, with ſome well managed and productive hop grounds, which, from the vaſt expence of cultivating, and uncertain produce, are kept in the hands of the moſt opulent landholders, to whom they are upon the whole lucrative.

The center of Eſſex, is too diſtant from the pits, to procure chalk, but lime, clay, and the other manures, which ariſe upon the ſpot, fertilize the ſoil.

POPULATION AND POOR.

Very extenſive woolen manufactories of bays, ſayt, &c. are carried on at Colcheſter, and the towns in this part of the county, in times of peace, and occaſion a great increaſe of population, and of courſe conſumption of the products of the land; but when one conſiders the heavy and almoſt unſupportable burden, of innumerable poor falling upon the land, the inſtant a proclamation for war is heard, and ſee the rates riſe to three-fourths of the rent, and ſometimes even exceeding it, it ſeems to ſtrike at the very root of a farmer's induſtry, and to act almoſt as a prohibition to all hopes of ſucceſs, whilſt the opulent manufacturer, who alone has grown rich by the labour of the pauper, now ſeems, from cuſtom, releaſed

from disbursing any part of his gains, to support the instruments of his wealth, when trade declines, and they are compelled to apply to their parish for relief.

CROPS.

In the north west part, the land is found from experience to yield most, if one crop only and a fallow is taken, except indeed, where it will bear turnips or clover, which answer particularly well here. Very little meadow or pasture is seen, but good crops of wheat, oats, peas, and beans are grown by means of these frequent fallows, besides a very considerable quantity of excellent barley, malted upon the spot for the London market, where it is said to be in high esteem. In the south east corner, farming seems to be as near, if not nearer perfection, than in any other part of Essex. The land is in general of a deep, rich, tender, loamy quality, and, as in other parts, rather farmed than grazed. The crops of wheat, beans, oats, coleseed or rape, mustard, and in short of any thing that is sown, afford a great return, compared with the common produce of land. The wheat is not unfrequently found to rise to a load an acre; oats (particularly the Poland), to eleven or twelve quarters, and beans and other corn in proportion. Some of this land has been known to produce five or six of the most exhausting crops successively, without a fallow or other particular usage, affording large crops of each. Wheat has been sown three successive years upon the same field, and the crops, upon an average, have amounted to four quarters per acre, the first, from the too great richness of the soil, being the least; though this, it must be confessed, is, by good managers, seldom put to the test, as it is a maxim in Essex, that land, when used well, that is fallowed, kept free from weeds, and properly ploughed, drained and manured, is a most grateful and sure friend, but if abused, or *run out*, as our phrase is, in a few years it brings its improvident occupier to

poverty.

poverty. This part of the county in particular is tilled with great ſpirit and judgment, though at a very great expence; labour of all kinds is extremely high, occaſioned in ſome meaſure by a ſcarcity of hands, which indeed is every ſucceſſive year leſs to be complained of, as population is rapidly increaſing.

DAIRY.

Our largeſt dairy farms are at, or in the neighbourhood of Epping, ſo deſervedly famous for the richneſs of its cream and butter. The farmer even here confines himſelf to no particular ſort of cows, but keeps up a ſtock of promiſcuous cattle, bought in as opportunities offer, though indeed the more provident of them ſay, where the land is particularly good, the Derby and Leiceſterſhires have a preference. Theſe in the ſummer are fed with the natural and artificial graſſes, and in the winter with hay (which is in general of the beſt quality) and grains. The beſt dairies are built on the north ſide of the farm houſes, calculated to be always cool; and are furniſhed with ſquare troughs, lined with lead, ſufficient to hold nine or ten gallons of milk, which is ſeldom ſuffered to be more than five or ſix inches deep; this, in winter, is ſkimmed four, and, in ſummer, two or three times; and the cream, after being kept three or four days, is churned into butter; and the milk, after it will afford no more cream, is given to the hogs, which it fattens to moſt delicious pork. Nearer London, their graſs land is mown twice, and, upon an average, will produce three loads an acre, at 1800 weight a load; which is mown, made, and ſtacked in four days, if the weather will permit; for, as ſoon as it is cut, the field is filled with women and children, who ſpread it, and turn it three or four times in the courſe of a day; which expeditious method is almoſt ſure to make the hay good.

POTATOE CULTURE.

Near Ilford, are some very extensive potatoe grounds, which are cropped year after year with this root, and produce a very lucrative trade in Covent Garden: the practice is, in the spring of the year, to select the very small potatoes of last year, or cut the larger ones into pieces, leaving one, two, or three eyes in each, and plant them regularly; these will shoot at each eye; and, unless some accident prevents it, produce a considerable increase by October, when they are taken up and housed, ready to be carried to market, as the demand is made for them. This species of husbandry, cannot be carried on with success, except in light lands, where the situation is such as to afford a constant supply of town, or other good manure, to keep the land in the best condition.

LANDS NEAR LONDON.

In the more western parts, towards the Thames, lie a considerable range of marshes and rich arable land, cultivated in the usual way practised within the influence of the London market; a detail of which, could be of no use, unless, where a universal market equal to that can be found.

GENERAL STATE OF THE COUNTY.

From the information gathered, chiefly from the accounts which have been given in answer to the queries of the board of agriculture, copied and dispersed amongst the most communicative and intelligent landholders in the different parts of the county, and from our own knowledge and observation, it appears, that the estates of individuals, are by no means so large, as in the northern, and other parts of the kingdom;

few

few having more than ſix thouſand a year, in land, within the limits of the county of Eſſex. The generality of the land is held in tillage, and produces abundance of wheat, barley, oats, beans, peas, turnips, tares, rape, muſtard, clover, rye graſs, trefoil, and every other valuable ſort of grain and pulſe; beſides the incloſures of hops, carraway, coriander, teazel, and the uſual productions of gardens; which, in the neighbourhood of many of our towns, are cultivated to the extent of ſeveral acres, in the ſame occupation; and are more than ſufficient to engage the time of the gardener and his family the year round. The farmer, indeed, finds a good account in keeping a certain quantity of ſtock; and, wherever the ſoil will admit of it, has a portion of his land in meadow or paſture; but depends greatly upon tares, turnips, and artificial graſſes, to help him through the winter and ſpring months; and endeavours to manage, ſo that the farming and grazing parts of his buſineſs, may mutually aſſiſt each other. The ſize of our incloſures, which, except the marſh lands, ſeldom exceed fifty or ſixty acres, is determined by the extent of the farms; which vary from eight hundred, or nine hundred acres, down to twenty and under; and divided into ten, twelve, or fourteen parcels, according to the nature of them, and the convenience of the occupiers.

WAGES OF LABOURERS.

The labourers are generally employed by the piece, and their work let to them upon ſuch terms, as enables them to earn, from eight and ſixpence, to twelve or fourteen ſhillings a week, each man; and, in the harveſt month, calculating all his perquiſites of malt, hops, gloves, dinners, &c. from four to ſix guineas, according to the different parts of the county he is engaged in.

MA-

MANURE.

The manures most in request are, chalk, lime, ashes, dung, the produce of the farm yard, town muck, clay, marl, and maiden earth; of these, where it can be had, and the land has not before been used to it, or where it has been well managed, chalk, on the colder lands, is preferable, and will continue its good effects for twenty years; which indeed it ought to do, as it often happens that it costs the tenant the full value of his land, to improve it by this manure.

MEADOWS.

Our meadows, or low grounds, are seldom watered by art; nor is it thought possible, that any considerable part of the county, should have this advantage, without a greater expence than prudence will justify. No capacious caverns, or receptacles for large quantities of water, formed by barren mountains, are to be seen in this part of England. Nor are our streams so plentifully supplied, that, by damming them up for a few hours, a country could be inundated at pleasure.

FALLOWING.

Fallowing is universally found to answer, and the work is done by horses. The chief reasons for preferring them to oxen, are, that on heavy land, these, in wet weather, will poach, so as to injure it very considerably, by treading down the manure and better soil, beyond the reach of the plough; and leave low places for the water to hang in and impoverish the soil, where horses will do no harm. Oxen move slower, and have less strength, and of course do less work in the same space of time; and particularly where the land

land is ſhort, and the turnings frequent, much time is loſt, by their natural inertneſs; and to theſe may be added, the univerſal diſlike the huſbandmen have to all innovations upon old practices; which, to thoſe who are converſant with this deſcription of people, will be known to be alone a very great obſtacle to the introduction of oxen; though it has lately happened, that beaſts, which the Welch drovers bring up ready broken to the yoke, have been made to work, in the hurry of ſeed time and harveſt, and great advantage has been found to ariſe from it; as, by the addition of one or two yokes of oxen, to the uſual ſtock, no ſeaſon can prove too ſhort for a farmer; and at more leiſure times, the regular team may be ſent out, for the various neceſſaries of fuel, manure, &c. without occaſioning the plough to ſtand ſtill: nor is any expence incurred by this aſſiſtance, beyond a rack of hay, which is given to the oxen to eat, till they have had time to cool ſufficiently to be turned out with ſafety.

IMPLEMENTS OF HUSBANDRY.

Our implements conſiſt of wheel and foot ploughs, with iron breaſts; the latter only uſed where farming is beſt managed: waggons large enough to carry two chaldron of coals; tumbrils; and ſmall carts with broad wheels, drawn by two horſes, are thought great improvements, where earth, clay, &c. is to be carried from one part of a farm to another; harrows and rolls, of different makes and weights, according to the land they are to be uſed upon. Seed time and harveſt muſt neceſſarily be guided, in ſome meaſure, by the ſeaſon; but it is uſual with us to ſow our wheat in October and November, our oats and barley in March and April, and to cut them in July and Auguſt: beans are dibbed in February, and ripen early in September. Our moſt intelligent farmers are of opinion, no ſubſtitute has yet been found out for fallows upon the ſtrong lands: nor do they think any proceſs

is likely to be of that utility to the land, as giving it a year's rest, with good and frequent ploughings, to keep it clean, and expose it thoroughly to the different seasons; this, and laying it down with good spring corn, and feeding it one year, and then breaking it up again, is, by experience, known to produce much more profit to the tenant, and less injury to the landlord, in the course of a lease, than the dishonest method of driving or over-cropping, or even the late boasted drill husbandry can pretend to.

CORIANDER, TEAZEL, AND CARRAWAY.

As Essex is rather singular in the production of a kind of treble crop, consisting of coriander, teazel, and carraway, a particular mention of it may be acceptable to the public. The seeds of these several plants are sown together, very early in the spring, upon a strong old ley, once ploughed; and generally yield very considerable returns: the usual mode is, for a substantial farmer to take in a sort of partner, in this species of husbandry, who is in an inferior situation, and will give up his time to the hoeing and managing of it: the agreement is, that the farmer supplies the land, ploughs it, and pays all parish and other usual charges incident to land; and the labourer sows it, keeps it clean by frequent hoeings, cuts, threshes, and makes it ready for market; and then the produce is equally divided: this connection lasts three years, and sometimes longer. In the first, the several seeds come up; and, when of sufficient growth, are set out with a hoe; and the coriander, which is an annual, is ripe before harvest, and produces a return of from ten to fourteen hundred weight an acre: in the second year the teazel, most of which will run now, yields a load, or six score staffs, of fifty heads each staff; and the carraway from three to six hundred weight of seed: the third year the teazel declines, and the carraway is in perfection, and will yield an equal bulk with the coriander;

ander; and moſt of the teazel that did not run laſt ſeaſon, will produce heads this, and afford a fourth or fifth part of the crop it did the preceding ſeaſon; by which time the ſeveral plants are in general exhauſted, though a fourth and even fifth year of carraway, has been known to ſucceed. The coriander, or *cal*, as ſome call it, and carraway, are to be treated with great care when ripe, otherwiſe the largeſt and beſt part of the ſeed will be loſt; to prevent which, women and children are employed to cut it, plant by plant, as ſoon as it is ripe, and put it immediately into cloths, prepared to receive it; and in them it is carried to the middle, or ſome other convenient part of the field, and threſhed upon a ſail cloth, ſpread for the purpoſe, upon which men ſtand to receive it; who, with a few ſtrokes of the flail get the ſeed clean out of the ſtraw, and are ready for another little load in a few minutes. The uſe of theſe ſeeds is too well known to need a word upon that ſubject. The teazel is alſo cut by women; who are inſtructed to leave the weak and rotten heads, and ſelect only the ſtrong and healthy ones; the others, being of no uſe, would ſpoil the ſample, and the credit of the grower; at the ſame time theſe heads are cut with a ſtalk, of ſix or eight inches in length, and bound up in ſmall bunches, or gleans, of five and twenty heads each; the like number of which bunches, or gleans, conſtitute half a ſtaff; which, after a few days ſun, to harden and dry them, are tied together upon a ſtick, or ſtaff, of two feet and a half long; and, in this form, carried to market. The head of the teazel is of a conical form, two or three inches in length, and one, or one and an half, in diameter, at the bottom, or largeſt end, armed on every part with ſmall, ſtrong points, turned a little downwards; and are bought by the woolen manufacturers; who fix them upon frames, calculated to cover a cylinder, which is made to turn round, and ſlightly catch their ſays, bays, &c. which another part of the weaver's machine draws againſt them; by which means the knap is raiſed to almoſt any length the manufacturer wiſhes. Sometimes, where the

farmer prefers a certainty, he will let his land, for three, four, or five pounds an acre per annum, for three years, ploughing and paying as before, rather than risk the hazards of blights, strong winds, when the seeds are ripe, or a decay of the woolen trade; any of which, greatly lessen the profits of this speculation. After the carraway is worn out, the farmer resumes his land, and has nothing to do, but plough and sow, for a good crop of wheat the following year, which is seldom known to disappoint him, after the land has been thus treated.

LAND DITCHING.

One of our most beneficial and permanent modes of improving land, not universally known, is, by land ditching or under draining. Where this process is intended, it must first be considered, whether the soil is sufficiently porous, to receive benefit adequate to the expence of it, as, in very strong ones, this sort of drain is not found to answer. But where the water can readily sink eighteen or twenty inches in the land, the farmer draws a furrow from the highest to the lowest part of his field, then digs out a spit, twelve or fourteen inches wide, and again with an instrument three inches wide, made for this work, digs four or five inches deeper, and with a bent scoop made for the purpose, takes out all the loose earth, and thus makes a narrow channel along the center of the furrow, leaving a sufficient shoulder on each side, to support a quantity of wood and straw, which is put upon them, to prevent the earth, which is now replaced, from falling into the narrow passage left for the water. These ditches are made at various distances from each other, from one, to two or three rods, and of depths, from one to two feet, and upwards, according to the necessity there is for them, and the nature of the soil, through which the water has to make its way, to get at them, and are made to empty themselves into deep ditches

at

at the bottom of the field; or where the field is large, one or more leading land ditch is made sufficiently large to receive the water from several of the smaller ones, which are then contrived to flow into them; where wood is scarce, small round stones have been successfully substituted for it: to make these ditches of more permanent use, they should be cut straight, and the passage for the water made of an equal depth throughout, or it will stop in the lowest parts, and occasions the sides to fall in and choak the drain. Where the soil is adapted to it, this work will last twenty years; but where there are squails, with sand or drift gravel, the passages are apt to choak in a short time. The plough, waggons, &c. go over these drains without doing them the least injury; and, in parks, and old pastures, it is not uncommon to turn the sod over the water channel, without either wood, stones, or straw; and the ditches are seen to work, or *draw*, as we call it, as well, after running thirty years, as they did at first. The better appearance and real improvement of the land are too obvious to be a moment doubted, by those who knew the land before and after this method has been used.

WOOD LANDS.

The woodlands of Essex are extensive, and would supply a vast quantity of well grown straight timber, could the proprietors be induced to suffer them to stand till they arrive at their full size; but the very distant prospect of seeing young trees become fit for his Majesty's dock yards, the late high price of bark, valuable in proportion to the sap, or growth in the tree, and the real injury they are to the underwood, which we fell every twelve, fourteen, or sixteen years, together with the increase of rent paid for land, preclude all hopes of keeping up our stock of the most necessary timbers, and even seem to threaten the destruction of most of our woods, which are yearly lessened to convert the land into farms. The management,

ment of underwood, particularly where the ſtubbs are young, might, it is preſumed, be improved by obliging the woodman to cut it even with, if not rather below the ſurface of the ground, by which means the ſtubbs would produce more plentiful ſhoots, and afford a quicker growth, beſides that the quantity cut would be conſiderably encreaſed, as it is no uncommon thing to ſee the old ſtubbs left a foot or two high, after the wood is ſelled; and if more attention were paid to the draining of woodlands, the owners would find a good account in it, when the wood next came in courſe for felling.

FARM HOUSES AND COVENANTS IN LEASES.

The houſes upon the Eſſex farms are good and conveniently conſtructed, and the ſtables, barns, cowhouſes, and other buildings, more numerous, than in moſt other counties. Theſe, after being put into repair by the landlord, at the commencement of the leaſe, are generally to be kept ſo at the tenant's expence, at leaſt as far as workmanſhip goes; this clauſe, with others to prevent meadows and old paſtures from being broken up; to oblige the tenant to fallow every ſecond or third year, to prohibit the growth of hemp, flax, wood, and ſuch exhauſting crops from being ſown; to forbid the diſpoſal of any of the hay, ſtraw, or manure ariſing on the farm, are generally inſerted in all leaſes, though particular covenants are entered into in almoſt every grant, according to the particular circumſtances of the caſe.

Our farmers of the preſent day, are much more enlightened than their predeceſſors half a century ago, and the more equal diviſion of landed property than once prevailed, has brought the landlord and his tenant upon a nearer level, by which means a ſort of friendly intercourſe is kept up, and the tenant's mind expanded by the more liberal ideas of his landlord, would induce him to incur any expence in ſuch improvements

as

as his reason and experience could justify, were he sure of reaping all the benefit of them.

STOCK.

If Essex fails in any part of husbandry, it is in the kind of stock it sends to market, which seem to be brought in without any sort of preference to this or that particular breed. In the course of a few miles ride, you will see North and South Wales, Irish and most other sorts of cattle, Norfolk, Hertfordshire, Lincoln, Wilts, &c. sheep, and not uncommonly two or three different kinds in the same field, though of late the South Down sheep, or this with a cross of the Norfolk, have been in great request; and it is to be hoped that an infant agricultural society, established within a twelve month under the patronage of our worthy representatives, will tend to correct this great error, and be of very essential service to the interest of the farmer, in all other particulars capable of improvement.

OBSTACLES TO HUSBANDRY.

As the honourable board has condescended to ask our opinion, of the supposed obstacles to improvement in agriculture, it is humbly submitted to their attention, whether this most useful science would not be greatly assisted, if the opulent manufacturers, were made to contribute in a larger proportion, to the necessities of their weavers, when driven to their parish by distress, than is the case at present; for although it may be replied, that there is already a law for this purpose, it is found so difficult to be put in practice, that it is not attempted here at present.

Other obstacles may be the total want of leases, or the short terms and strict and penal covenants, sometimes insisted upon by gentlemen of property, which prohibits that return which is necessary

neceſſary, to induce a man to diſburſe his property in the improvements of the natural ſoil; and were the land owners to conſider, that, except in a very few inſtances of converting meadows and old leas into tillage, deſtroying timber, &c. their and their tenants real intereſts are the ſame, for the greater part of a leaſe, they would ſee it to be to their own, and the public advantage, to ſuffer their tenants to manage the land in ſuch way, as would beſt enable them to pay their rents with punctuality, and almoſt give them their own covenants, till the term came within five or ſix years of its expiration; when, perhaps, it might be nothing more than policy, to guard againſt the poſſibility of abuſe, by laying down ſome rules to govern their conduct, in thoſe particulars, where their intereſt militates againſt that of their landlords; but any certain fixed method, or rotation of management, will ever be diſadvantageous to the growth of corn, ſo long as the ſeaſons are uncertain, and the many caſualties a farmer is liable to (which no art or induſtry can prevent) continue to perplex him. If it ſhould be thought this liberal conduct on the part of the landlord, might lay his good nature open to the deſigns of an artful tenant, who might think himſelf at liberty to crop his land, as long as it would pay him for the tillage, and then reſign or ſell his leaſe; it may be anſwered, that, if the certainty of loſing his character, would not operate ſufficiently upon him, to prevent ſuch impolitic meaſures in a tenant, they might eaſily be provided againſt by a clauſe in the leaſe, calculated for that end; or, by an indemnification of ſome other ſort, before the leaſe was granted.

Another circumſtance which would aid the plough, it is conceived, is liberty to the poor to ſeek a livelihood wherever work offers, or inclination leads them to ſeek for it, inſtead of being ſubject to be taken up, if found out of their own pariſh, and carried to what is called to their place of ſettlement, at the caprice of an overſeer, to ſit at home, or what is worſe, while they have any credit left, at the alehouſe, for want of employ; labourers will then, it is preſumed, naturally

be

be led to reſide, where they could render moſt ſervice to the community, and have a proſpect of ſupporting themſelves and families, without being reduced to the mortifying application to an unfeeling pariſh officer. The rates would be leſs heavy, the land better tilled, at a ſmaller expence than at preſent, and both the rich and the poor would feel the benefit.

Another hindrance to the improvements, which men of property and ſpirit might otherwiſe make, particularly in regard to waſte and uncultivated land, is the preſent mode of rewarding the labours of the clergy. Could the honorable board ſuggeſt ſome fair equivalent, which would make that moſt valuable member of ſociety, the farmer, ſecure in all the juſt gains of his laborious endeavours, without injuring the legal rights of the church, it would confer the moſt ſubſtantial benefit on the landed intereſt in general, aſſiſt morality and good neighbourhood, and give comfort to the tithe gatherer, as well as to the landlord and the huſbandman, all of whom, were the ſubject properly underſtood, it would not be difficult to ſatisfy.

A further improvement, which ſeems to follow that of a commutation of tithes, and would increaſe the growth of the neceſſaries and conveniences of life, would be, empowering the clergy, to grant leaſes of the church lands, for ſuch terms, as would inſure their tenants a reaſonable time to reap the fair returns of the beſt modes of huſbandry; for as they are now circumſtanced, no permanent improvements are attempted, the land lies half cultivated, and ſeems, in almoſt every pariſh you go through, to plead for better treatment, by the unexampled poverty of its appearance.

An object, not perhaps beneath the notice of this moſt uſeful inſtitution, is thought to be a general commiſſion of ſewers, for the repairs and preſervation of the ſea walls along the coaſt, which protect the lands moſt capable of improvement, from the deſtructive inundations of the ſalt water, which is known to leave ſuch fatal effects behind it, that the land is not worth the tillage for ſeveral years after it has been

overflown; besides, that the expence and trouble which may have been laid out upon it, are for ever lost. At present, it is common for the owners of land, to manage their own walls according to their own discretion, by which means, the neglect of an individual, may cause not only ruin to himself, but to many of his more careful neighbours, and spread a general distress around him.

CONCLUSION.

It cannot, we flatter ourselves, be thought foreign to the present subject to remark, that, as the justice done to the labourers, by those with whom they lay out their little earnings, must, in some degree, affect the price of work here; officers are appointed to secure that desirable end, not known in every county in the kingdom. Two men are nominated for that purpose, at a certain annual salary (25l. each), whom we call public weighers, whose business it is to go to the several parts of the county, and examine the weights of all millers and shopkeepers, and make returns of those in whose possession any light weight is found, to the quarter sessions, by whose authority they act; and whenever complaint of this sort is made, the suspected dealer is summoned to appear at the following sessions, where, if he is unable to acquit himself of the charge alledged against him, he is sure to be exposed, and otherwise punished, in proportion to his demerits.

FINIS.

LIST

OF THE

MEMBERS

OF THE

Gt Brit

BOARD OF AGRICULTU

The Arch-Bishop of Canterbury,
The Lord Chancellor,
The Arch-Bishop of York,
Lord President of the Council,
Lord Privy Seal,
First Lord of the Treasury,
First Lord of the Admiralty,
The Bishop of London,
The Bishop of Durham,
Lord Grenville, } Secretaries of St
Mr. Dundas, }

Master General of the Ordnance,
The Speaker of the House of Commons,
President of the Royal Society,
The Surveyor General of Woods and Forests, and
The Surveyor General of the Crown Lands:

The Duke of Grafton,
The Duke of Buccleugh,
The Duke of Bedford,
The Marquis of Bath,
The Earl of Winchelsea,
The Earl of Hopetoun,
Earl Fitzwilliam,
The Earl of Egremont,
The Earl of Lonsdale,
The Earl of Moira,
The Earl of Carysfort,
Lord Hawke,
The Bishop of Llandaff,
Lord Clive,
Lord Sheffield,
Right Honourable William Windham,
Honourable Charles Marsham,
Sir Charles Morgan, Bart.
William Pulteney, Esq.
Thomas William Coke, Esq.

Thomas

Thomas Powys, Esq.
Henry Duncombe, Esq.
Edward Loveden Loveden, Esq.
John Southey Somerville, Esq.
Robert Barclay, Esq.
Robert Smith, Esq.
George Sumner, Esq.
John Conyers, Esq.
Christopher Willoughby, Esq.
William Geary, Esq.

Sir John Sinclair, Bart. President.
Sir John Call, Bart. Treasurer,
Arthur Young, Esq. Secretary.

THE Board is impowered to nominate an indefinite Number of HONORARY and CORRESPONDING MEMBERS, the former of whom are intitled to be present at the Deliberations of the Board, but have not the privilege of Voting in any Question agitated there.

OF THE

MEMBERS

OF THE

BOARD OF AGRICULTURE.

SUBSTANCE

OF

SIR JOHN SINCLAIR's ADDRESS

TO THE

BOARD OF AGRICULTURE

ON THE FIRST DAY OF ITS BEING ASSEMBLED.

THAT he could not forbear troubling the Board with a few words, congratulati the Members present, on the complete establishment, of so invaluable an Institutio as that of *a Board of Agriculture*. That in other Countries attempts of a simi nature, on a humbler scale, had been made; but that the present, he believed, w the first instance, of such an Institution having been snatched from the feeble han of Individuals, and invested with all the strength and vigour of public establi ment.

That from the circumstance of his having moved in Parliament for the establi ment of that Board, HIS MAJESTY had been graciously pleased to nominate him President, a situation, to which he could not otherwise have aspired, among so ma Members, distinguished by superior talents, and possessed of greater experience a skill in Husbandry; but that he would endeavour to make up for any personal de ciency, by the most unwearied zeal and attention, to promote the objects for whi the Board was constituted.

That no man would have ventured to have made such a Motion in Parliament, wit out having previously sketched out in his own mind, some general ideas, respecting system that might be pursued, in case the proposed Institution should take place, a that he would shortly state to the Board, what had occurred to him upon the subje

That having carried on, for some years past, a correspondence with above 15 individuals, on matters of a public nature (for promoting the Improvement of Brit Wool, and examining with great minuteness, into the Political State of Scotland) he w enabled, by the experience which he had thus acquired, to ascertain, in a gr measure, those leading principles, on which so great and extensive a plan might conducted, and these he would shortly submit to the consideration of the Meeting.

That in the first place, he had much satisfaction in stating, as the foundation which the Edifice of National Improvement might be built, that there existed

t of actual and efficient capital, than, so far as he could judge, any other the same extent and population in the universe, could boast of; and that ould be necessary, but to call forth that ability, and to collect that infor- to give the capital of the country a direction or tendency to increase lth and Cultivation, in preference to more distant objects, in order to land, what it ought to be, "*The Garden of Europe.*"

cond place, he was certain, that there existed a greater mass of public nation at large, (more especially among that description of people, with Board of Agriculture was principally connected) than was commonly ima- he was satisfied, that the Board would find no difficulty, in prevailing e and intelligent Husbandmen of this Kingdom, to try any experiment, or y system, that could contribute to the public good, and did not materially inst their own personal interests; and that a wide difference would be een a recommendation to Improvement, coming from a respectable pub- han if it came from private individuals.

hird place, this principle ought ever to be kept in view, that in a good cause, an resist industry and perseverance. That at first, some doubts or jealousies ertained of a new Institution, and some rumours might be circulated respect- jects of the Board, which time would soon do away. But for his part, he d no doubt, that if Parliament would continue its pecuniary assistance for s, (promoting at the same time, by wise regulations, a general system of Im- t) and if the Board (which he was persuaded would be the case) would ersist in its exertions, that in a very short period, the produce of many millions ow cultivated in a very defective manner, would be greatly augmented; that ions of acres, now lying waste, would be brought under cultivation, and that of the kingdom would be improved, to at least double its present value.

rd to the Plan to be pursued, he submitted to the consideration of the Board, he first object ought not to be, *to ascertain Facts*, without which no theory of reasoning, however plausible, could be depended on. That for that pur- ould be necessary to examine into the Agricultural State of all the different in the Kingdom, and to inquire into the means, which, in the opinion of t man, were the most likely to promote, either a general system of Improve- the advantage of particular districts. That by employing a number of for that purpose, and circulating their Reports previous to their being pub- equesting the additional remarks and observations of those to whom such ications were sent, it was probable, that no important fact, or even useful uld escape notice.

the immense mass of information thus accumulated, would answer two pur- irst, it would point out the measures which the Legislature might take, for ng Agricultural Improvements; secondly, Individuals would thus be instructed, practice and experience of others—the Landlord in the proper mode of ma- his property, and the Farmer in the best plan of cultivating his fields.

That

That for attaining the first object, that of legislative assistance, it would be pr digest the substance of the information that was accumulated, into one Report, to mitted to the consideration of HIS MAJESTY, and of both Houses of Parli suggesting, in the Report, what measures had occurred, in the course of their ries, that could tend to the Improvement of the Country. He added, that fr spirit with which these Agricultural Surveys had been gone into, there wa reason to hope, that a report might be drawn up, on the general state of the h dry of the kingdom, in time sufficient to enable Parliament, to take some e measures for the benefit of Agriculture, in the course even of the ensuing S

That Parliament might be of essential service to Husbandry in two respects by removing *all Discouragements to Rural Industry*; and secondly, by granting *ragements*. That the second was a matter of much delicacy, and which requi mature consideration. At the same time it was certain, that by granting Enc ments to Agriculture, the Great FREDERICK of Prussia was enabled to dou value of his dominions, and to amass a very considerable treasure, amountir well known, to many millions sterling. That such Encouragements opera manure spread upon the ground, which insured a more abundant harvest. they also had a tendency to impress on the public mind this truth, "That the cultivation of the soil, is an object so peculiarly interesting to the Community a that those who most assiduously attend to it, are, perhaps, to be accounted th meritorious Citizens of their Country." That in one point of view, at lea Husbandman was more intitled to public attention, than those who followe professions, being more fixed to the territory on which he lived, and less ap habit, inclination, or ability, to wander from it.

That in regard to instructing individuals, no doubt could be entertained the great mass of information which would be accumulated, by the Correspo of the Board, both at home and abroad, that the best mode of managing land perty, or in other words, the most advantageous system of connection betwe Landlord and the Tenant, would be ascertained, and that the principles of r Husbandry, for the instruction of the practical Farmer, would soon be brougl very great degree of simplicity and perfection.

That he would not anticipate, with too much confidence, the important quences, that might result from such an Institution. He believed, however, the none, from which the Public at large, had reason to expect so many sub benefits. That the Board, indeed, was already looked up to, even by Foreig tions, as likely to become *the general magazine of knowledge on agricultural s* That they already considered it as the source from which they were to derive th important information, and the most solid advantages. That in these respects, a Agriculture had an advantage over other arts, that no jealousy subsisted amon who were engaged in it, and that every discovery which tended to its Improv more essentially contributed, than in any other, to promote the general good species.

nly add, that if the measures he had ventured to hint at, and others
ı the Internal Improvement of the Country, which he would afterwards
anity of suggesting, were approved of by the Board, and carried on with
eal, that he was willing to dedicate the whole of his time, and exer-
t in the prosecution of them, fully convinced that no pursuits could be
g to the mind for the present, or would be recollected in future, with
satisfaction.

Board
of Agriculture

ARRANGEMENT OF THE

AGRICULTURAL SURVEY

Gt Brit.

NOW CARRYING ON UNDER THE DIRECTION OF THE BOARD OF AGRI
AND THE PERSONS BY WHOM THEY ARE RESPECTIVELY UNDERTA

ENGLAND.

County of	Person.
Norfolk,	Mr Kent.
Suffolk,	Mr Arthur Young.
Essex,	Messrs Griggs of Hillhouse.
Middlesex,	Mr Peter Foot.
Surry,	Messrs Malcolm of Stockwell.
Kent,	Mr Boys of Betshanger.
Sussex,	Rev. Mr Young.
Hants,	Rev. Mr Warren, junr.
Dorset,	Mr Claridge.
Devon, and Cornwall,	Mr Robert Fraser, surveyor to H. R Prince of Wales, and the Agr Societies of Devon and Cornwal
Somerset,	Mr Billingsley, and the Bath and England Agriculture Society.
Wilts,	Mr Thomas Davies of Longleat, and Society.
Berks,	Mr Pearce.
Bucks,	Messrs Malcolm of Stockwell.
Oxon,	Mr Robert Davis.
Bedford,	Mr Stone.
Leicester,	Mr Monk, author of the Agricultural nary now printing, and the Agricul ciety of Leicester.
Warwick,	Mr John Wedge.
Northampton,	Mr George Maxwell, and Mr Rob monds of Boughton house.
Huntingdon,	Mr Stone, and Mr Maxwell.
Herts,	Mr David Walker.
Rutland,	Mr Crutchley of Burley.
Chester,	Mr Thomas Wedge.
Lincoln,	Mr Stone.

County of	Person.
ge,	Mr Charles Vancouver.
,	The Agriculture Society of Durham.
aberland,	Mr Bailey and Mr George Culley.
	Mr Bifhton of Killsall.
	Mr Bifhton and Mr Wyatt.
ıth,	Mr Lane.
l,	Mr Clarke.
er,	Mr Turner of Dowdeswell.
	Mr Wyatt of Burton upon Trent.
	Mr Lowe of Oxton.
ınd,	Mr Bailey of Chillingham, and Mr George Culley of Fenton in Northumberland,
eland,	Mr Pringle of Balencrieff.
ı,	Mr Pomeroy of Fairway, near Honiton.
,	Mr Holt of Walton, and the Agriculture Society of Manchester.
1. East Riding.	Mr Leathem.
2. North do.	Mr Tuke, junr.
3. West do.	Mr George Rennie, Mr Brown and Mr Shirreff.

WALES

County of	Person.
e, hen,	Mr Hafsall.
,	Mr Lloyd, and the rev. Mr Turner.
	Mr Clarke.
ın,	Mr Lane, and the Agriculture Society there
	Mr Lovett of Chirke.
, n, h, ıery,	Mr George Kay.

SCOTLAND.

County of	Person.
Berwick,	Mr Fordyce of Ayton.
East Lothian,	Mr Buchan Hepburn.
Mid Lothian,	Mr George Robertson of Granton.
West Lothian,	Mr James Trotter.
Dumfries,	Mr Riddell of Glenriddell, &c. &c.
Galloway County and Stewartry,	Mr Webster.
Ayr,	Colonel Fullarton.
Dumbarton,	Reverend Mr Ure.
Renfrew,	Mr Alexander Martin of Salton.
Argyll, and Western coast of Inverneſs-ſhire,	Mr Robson.
The Hebrides or Western Islands,	Rev. Dr Walker, profeſsor of natu ry in the University of Edinbur
Stirling,	Mr Belsches.
Clackmannan,	Mr Erſkine of Marr.
Roxburgh,	Mr Dawson of Frogden.
Selkirk, and Peebles,	Mr Thomas Johnston.
Clydesdale,	Mr John Naismith.
Carse of Gowrie,	Mr James Donaldson.
Monteith and Strathearn,	Rev. Mr Robertson of Callander.
Kinroſs,	Dr Coventry profeſsor of Agricult University of Edinburgh
Fife,	Mr Beatson of Lochgellie.
Forfar,	Mr Dempster of Dunnichen.
Mearns,	Mr Barclay of Urie.
Aberdeen,	Dr Anderson.
Banff, Moray, Nairn, and Eastern part of Inverneſs,	Mr James Donaldson.
Interior districts in the Highlands,	Mr Marſhall author of the Norfolk dry, &c.
The North of Scotland, and the Northern Isles	Sir John Sinclair.

s the reports transmitted to the Board, are to be printed, and very
erally circulated, in the counties to which they respectively
e, previously to their being publiſhed, there is every reason to be-
e, that no material error can escape observation, and that every use-
ict, or valuable idea, existing in the kingdom, on the subject of a-
ulture, will be brought forward.

copy of the returns transmitted by the different surveyors, (or
one that respects any particular county,) will be sent to the mem-
s of both houses, on application to the Board, by a letter directed
ir John Sinclair, the President, at Whitehall, London. It is request-
hat such application may be made as quickly as poſsible, *(as the
er of copies, to be printed, must be settled accordingly,)* and that a di-
ion be sent at the same time, how the papers are to be addreſsed,

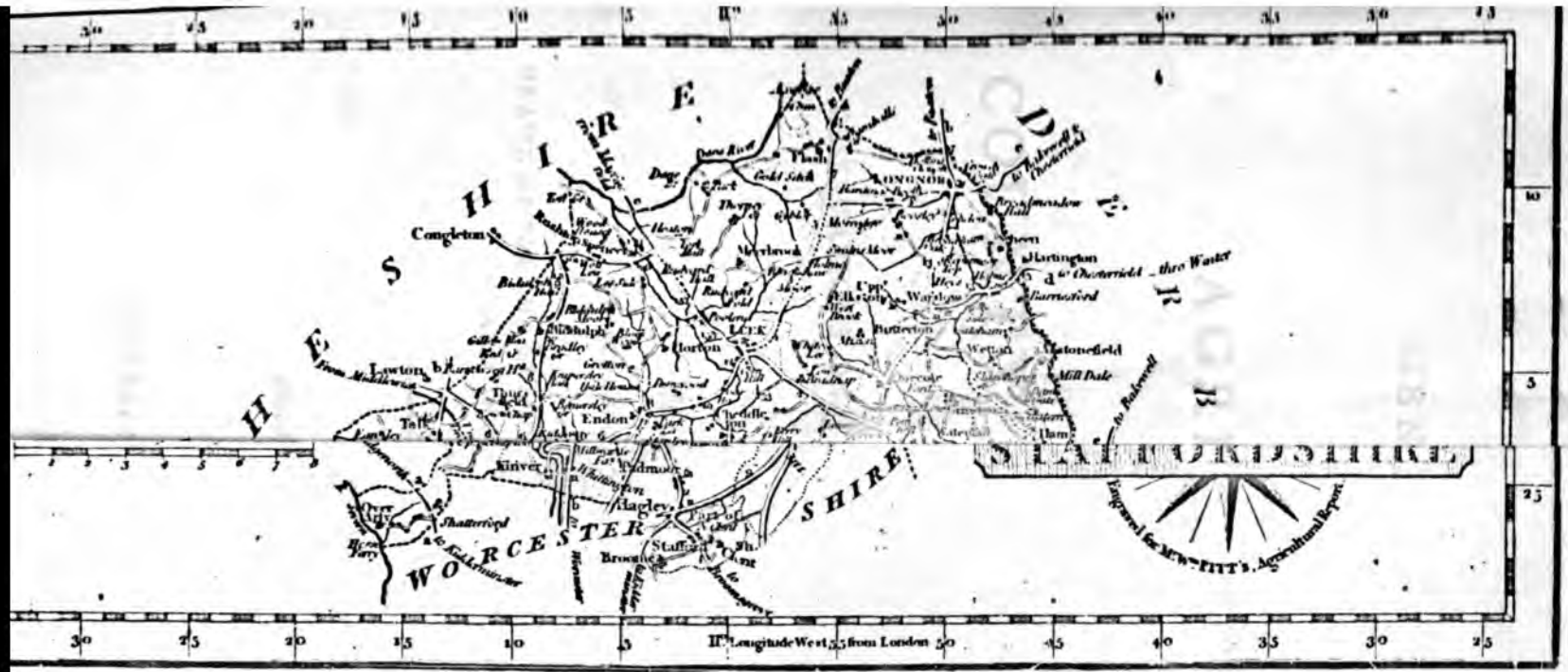
GENERAL VIEW

OF THE

AGRICULTURE

OF THE

COUNTY OF STAFFO


Congleton
Leek
Longton
Talke
Endon
Kinver
Bradley
Bromley
Staffordshire
Worcestershire
Longitude West from London
Engraved for Mr. Pitt's Agricultural Report


Congleton
Lawton
Talke
Endon
Kinver
Madeley
Stafford
Brocton
Leek
Horton
Werrington
Ilam
Mow Cop
Longitude West from London
Engraved for Mr. PITT's Agricultural Report

INTRODUCTION.

To render the Account of this County perſpicuous, it is propoſed a ſlight ſketch of its Geography, of its Manufactures and Comme well as of its Agriculture: but the main object being a delineatio Agriculture, that ſubject will be treated more fully; and the others touched upon, ſo far only as they have a reference to, and tend i meaſure to illuſtrate, the main ſubject.

Conſidering it as an embelliſhment, and a relaxation of the min the fatigue of conſtant attention to one ſubject, the Writer has introd few remarks upon Natural Hiſtory and Botany, and even on ſome ſubjects not immediately or cloſely connected with Agriculture. Thi done with brevity will not take up much room, and being generally nected with the main ſubject, may (if the Board ſhall diſapprove introduction of ſuch extraneous matter) be eaſily expunged by a the pen. He has farther to expreſs his acknowledgments and obli to the following Gentlemen, Clergymen and others, for their aſſi recommendation, and the information which he has received from and by their means, in this buſineſs:

Mr. Bradburne, *Pipehill*, near *Lichfield*.
Rev. Dr. Falconer, *Lichfield*.
Rev. T. Gisborne, *Yoxall Lodge*, *Needwood Foreſt*.
Rev. Mr. Dickenson, Rector of *Blymhill*.
Rev. Mr. Wright, *Bradley*, near *Stafford*.
Josiah Wedgwood, Eſq. *Etruria*.
Edward Sneyd, Eſq. *Bellmont*, near *Leek*.

Mr. PRINCEP, *Croxall.*
Mr. SAMUEL WYATT, *Burton on Trent.*
Mr. LOCKLEY, *Boscobel.*
Mr. CORSEP, *Bushbury*, near *Wolverhampton.*
Mr. MILLER, *Dunstall*, near *Wolverhampton.*
Mr. JOSEPH HORDERN, *Saredon*, near *Wolverhampton.*
Mr. ELLISON, *Hattons*, near *Wolverhampton.*
Mr. HIGGS, *Cronkhall*, near *Wolverhampton.*
Mr. FERRIDAY, *Ettingsall Park*, near *Wolverhampton.*
Mr. FOWLER, *Erdington*, near *Birmingham.*
Mr. CURTIS, *Walsall.*
Mr. HARDING, *Ashley Heath*, near *Ecclesshall.*
Mr. HARVEY, *Dunstall*, near *Abbots Bromley.*
Mr. BOWMAN, at Lord DONEGALL's, *Fisherwick.*
Mr. JOHN SMITH, *Haunton*, near *Tamworth.*
Mr. WILLIAM WEBB, *Newbould*, near *Burton on Trent.*
Mr. JENKINSON, *Stoke*, near *Stone.*
Mr. GIBBS, *Leek.*

GENERAL

GENERAL VIEW, &c.

GEOGRAPHICAL ACCOUNT.

STAFFORDSHIRE is an inland county ſituate near the centre of the kingdom. It is bounded on the north by Cheſhire and Derbyſhire; on the eaſt by Leiceſterſhire; on the ſouth by Warwickſhire and Worceſterſhire; and on the weſt by Shropſhire. It lies, according to Yates, between 52° 23′ and 53° 13′ north latitude, and between 1° 29′ and 2° 27′ weſt longitude from London; this place (Pendeford) being in this ſurvey placed in latitude 52° 37½′ north, and longitude 2° 4′ weſt. I found myſelf, by a pretty accurate obſervation, made December 20, 1790, being the ſhorteſt day, and very fine, about noon, the latitude of Pendeford to be 52° 35½′, which varies from the above account only two minutes. The following are the particulars of this obſervation:

	°	′
Sun's meridian altitude to upper limb,	14	15
Deduct ſun's ſemidiameter,	0	16
Deduct for refraction,	0	3½
Deduct	0	19½
Remains meridian altitude of ſun's centre,	13	55½
Add ſun's declination,	23	29
Sum, complement of latitude,	37	24½
Conſequently latitude of Pendeford,	52	35½

Sun's central altitude ſame day at 11 and 1 o'clock, 12 40.

The

The greateſt length of Staffordſhire, from the north part o Ax-Edge Common to the ſouth part of Woods Eaves (ſout of the Severn), from N. N. E. to S. S. W. is ſixty Engliſ miles; and the greateſt breadth, from the junction of th Trent and Dove, near Newton Solney, to the weſt point o Terley Heath, near Drayton, nearly from eaſt to weſt, thirty-eight miles: the county contains in groſs 1220 ſquar miles, and 780,800 ſtatute acres.

This county was a part of the ancient Cornavii. Undo the Saxon Heptarchy, it belonged to the kingdom of Merci In the modern political arrangement of the kingdom, it is i the Oxford Circuit; and reſpecting its eccleſiaſtical govern ment, within the dioceſe of Lichfield and Coventry. It divided into five hundreds: 1. Totmanſlow to the north 2. Pyrehill to the north-weſt; 3. Cudleſtone to the ſoutl weſt; 4. Offley to the eaſt; and 5. Seiſdon to the ſoutl It contains twenty-two market-towns, one or two othe places where fairs are held, one hundred and eighty-or pariſhes, but of theſe more particulars hereafter, and probabl about two hundred and fifty thouſand inhabitants.

The air of this county I think ſharp, and the cold percept bly to the ſenſes greater than in many other counties, particu larly than in the neighbourhood of London, having often ha an opportunity of making a quick compariſon. The clima too may be termed inclining to wet. The annual rains are, believe, ſuppoſing them to ſtagnate on the ground witho waſte or evaporation, upwards of thirty-ſix inches; thoſe London do not exceed twenty or twenty-one inches; and Upminſter, in Eſſex, they are only nineteen inches and quarter. The rains of Lancaſhire amount to forty-tw inches, and thoſe of Ireland to more. I believe it will gen rally hold good as a rule, that the annual rains on the weſt ſi of the kingdom are at leaſt double to thoſe on the eaſt ſid

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which I attribute to its being more exposed to the condensation of aqueous vapours arising from the vast expanse of the Atlantic Ocean. I have no doubt also but that a vast deal more moisture in this county falls on high grounds than on low, the high grounds being, from situation, more adapted to break, dissolve, and attract, the aqueous vapours afloat in the atmosphere. Accordingly we often find, after rain, great torrents of water pushing down from the high grounds into the valleys: it is more particularly certain, that the high grounds receive a greater quantity of snow in winter than the plains of less elevation.

The aspect of this country is various. The north part rises gently in small hills, which, beginning here, run through the heart of England, like the Apennines in Italy, in a continued ridge, rising gradually higher and higher into Scotland, under different names: here called Moorlands; then Peake; then Blackstone edge; then Craven; then Stanmore; and then parting into two horns are called Cheviots. The Moorland is a rough dreary cold tract, the snow lying long on it. The people here observe, that the west wind always brings rain, but the east and south winds make fair weather, unless the wind turns about from the west to the south, which then continues rainy. The middle and south part of the county are generally level, or with only gentle eminences. To this however there are some exceptions; as the lime-stone hills of Dudley and Sedgeley, which furnish an inexhaustible supply of that material, and great part of it of excellent quality. The Quartzose, or Ragstone Hills of Rowley, furnish an excellent material for roads and pavements. The hills of Clent and Barrbeacon, besides many others of less elevation, as the high grounds on Cannock Heath, the hills of Bushbury and Essington, formed chiefly of, or at least containing great quantities of gravel, Kinfare Edge, Tettenhall Wood, and some situations

near Enville, alſo command extenſive proſpects. In this place it may not be improper (as it will not take up much room) to ſtate a few particulars of a ſubject doubtleſs curious, and which, though not immediately connected, is yet not altogether foreign to the buſineſs in hand. Theſe particulars are, the perpendicular elevation of ſome of the high ſummits, medium plains, and lowlands, of this inland county above the level of the tide of the ocean; the writer of this having had many opportunities of aſcertaining theſe particulars, in many caſes very accurately, and in others nearly. The loweſt points of land in the county are, probably, the Severn at Over Areley, and the Trent where it receives the Dove below Burton.

Elevation of ſundry Points of Land in this County, perpendicularly above the Level of the Tide of the Thames at Brentford.

PARTICULAR SPOTS.	ELEVATION. Feet	In.
Banks of the Severn at Over Areley,	60	0
——— of the Tame at Tamworth,	150	0
——— of the Trent at its junction with the Dove,	100	0
——— of the ſummit of the Staffordſhire Canal,	385	0
——— of the ſummit of the Birmingham Canal,	500	0
——— of the ſummit of the Wyrley Canal, at Eſſington Wood New Colliery,	566	0
Summit of Buſhbury Hill,	650	0
——— of Barr-beacon,	750	0
——— of the higheſt peak of Rowley Hills,	900	0
——— of the Grand Trunk Canal,	420	0
——— of a hill called Bunſter, near Ilam, in the Moorlands,	1200	0
——— of Wever Hills, and ſome other of the higheſt peaks in the Moorlands,	1500	0

Many of the above are by actual obſervation, and others by eſtimate only.

Hence it appears, that even in the centre of the kingdom few ſpots of plain or cultivated country are ſo much elevated as to be two hundred yards perpendicular above the level of the ſea; and that it by no means follows of courſe, that the higheſt ſpots of ground are far within land, unleſs ſuch inland ſituations contain highhills or mountains, the ſummits of mountains near the coaſt far overtopping the champaign country, though remote from the ſea. I have obſerved, that the Wrekin and Clee hills of Shropſhire, whoſe baſes are upon the lowlands near the Severn, have, nevertheleſs, their ſummits riſing conſiderably above the hills in the ſouth of Staffordſhire, from whence they are ſeen; and the ſummit of Snowden, though near the coaſt, I believe to be ſeveral hundred yards perpendicularly higher ſtill.

RIVERS OF STAFFORDSHIRE.

THE Severn, though it paſſes through one of the pariſhes of this county, (viz.) Over Areley, can hardly be called a Staffordſhire river, yet it receives the tribute of ſome conſiderable brooks ariſing in the county; the principal river therefore of the county is, the Trent, which, riſing in the Moorlands near Biddulph, takes a winding courſe, firſt ſoutherly, then eaſterly, and laſtly north-eaſterly, and after waſhing the county for a courſe of upwards of fifty miles, leaves it at Burton, where it becomes navigable. In its courſe it receives

the following rivers, mostly arising also in the Moorlands and the before-named hills, viz. the Dove, the Manyfold, the Hamps or Hanse; the two last of which run under ground a considerable way near Ilam and Leyhouse; also the Churnet, the Blythe, the Teyn, and the Sow, after it has received the Penk; also, below Wichnor, the Tame, which arises in the south of the county, and comes through Tamworth to this place, where it is a considerable river. These rivers all fall into the Trent, which conveys them to the sea. The Stour and Smestall run through the south of the county into the Severn.

It might be a curious, and perhaps useful subject, not unworthy the patronage of the Board, to ascertain by experiment the quantity of water falling in particular Districts; and the proportion of such quantity absorbed by the earth and its products, by the atmosphere, and carried off by rivulets respectively. The quantity falling being determined by a weather-gage, the quantity running off seems not difficult to determine; for in most countries particular outlets may be fixed upon where the superfluous water of a certain district passes off. The extent of such District being ascertained, and a trusty person fixed upon near such outlet, to take, at stated times the depth and velocity of the stream, from thence the quantity of passing water may be estimated. I think a steady excise officer might be instructed to register such account; and that a small addition of salary might recompense him for his trouble. I know a particular spot in Staffordshire where the flood-water of upwards of one hundred square miles passes at a particular bridge, and can go no other way; and doubtless similar situations may be found in various places. The county, upon the whole, is well watered, and much of its water appropriated and usefully employed; yet large quantities of it are carried off in waste by floods.

The

THE following is a List of the Market-Towns and Parishes of this County:

MARKET-TOWNS, ANCIENT AND MODERN.

1. Stafford, the County-Town, Market-Day Saturday.
2. Lichfield, Friday.
3. Wolverhampton, Wednesday.
4. Walsall, Tuesday.
5. Burton on Trent.
6. Uttoxeter.
7. Newcastle.
8. Leek.
9. Stone.
10. Cheadle.
11. Eccleshall.
12. Rudgeley.
13. Tamworth.
14. Tutbury.
15. Abbots Bromley.
16. Breewood——very trifling.
17. Penkridge——now declined.
18. Cannock——declined.
19. Betley——declined.
20. Wednesbury——for fowls, butter, &c.
21. Burslem, } In the Potteries, now considerable
22. Hanley Green, } markets for provisions.

A LIST

A LIST OF THE PARISHES OF STAFFORDSHIRE

[By the term Parish is here meant, a tract of lan having a place of worship, and united in some degree by common or mutual interest, without regarding the ecclesiasti cal constitution or dependance upon a superior or mother church.]

In this sense, Totmanslow Hundred contains forty pa rishes :

1. Alstonefield
2. Alveton
3. Bagnal
4. Blore
5. Bradley in the Moors
6. Bramshall
7. Butterton
8. Calton
9. Caldon
10. Caverswall
11. Cheadle
12. Croxden
13. Checkley
14. Chedleton
15. Dilhorne
16. Draycott in the Moors
17. Endon
18. Elkstone
19. Ellaston
20. Flash
21. Gratwich
22. Grindon
23. Horton
24. Ilam
25. Ipstones
26. Kingston
27. Kingsley
28. Leek
29. Longnor
30. Leigh
31. Mayfield
32. Oakover
33. Onecote
34. Meerbrook
35. Rocester
36. Sheer
37. Warslow
38. Wetton
39. Waterfall
40. Uttoxeter.

Pyrehill Hundred contains forty-seven parishes :

1. Abbots Bromley
2. Adbaston
3. Ashley
4. Audley

5. Blithfie

5. Blithfield
6. Barlaſton
7. Blurton
8. Betley
9. Burſlem
10. Bucknall
11. Biddulph
12. Colwich
13. Colton
14. Chabſey
15. Ellenhall
16. Eccleſhall
17. Broughton
18. Fradſwell
19. Fulford
20. Gayton
21. High Offley
22. Hanley
23. Keel
24. Lane End
25. Muckleſton
26. Maer
27. Madeley
28. Milwich
29. Marſton
30. Newcaſtle
31. Norton in the Moors
32. Stoke on Trent
33. Stafford
34. Stowe
35. Sandon
36. Stone
37. Seighford
38. Standon
39. Swinnerton
40. Ronton
41. Tixall
42. Thursfield
43. Talk on the Hill
44. Trentham
45. Whitmore
46. Woolſtanton
47. Weſton on Trent.

Cuddleſtone Hundred contains twenty-three pariſhes, viz.

1. Acton
2. Baſwich
3. Breewood
4. Bednall
5. Blimhill
6. Bradley juxta Stafford
7. Cannock
8. Coppenhall
9. Caſtle Church
10. Dunſton
11. Forton
12. Gnoſhall
13. Haughton
14. Lapley
15. Norbury
16. Penkridge

17. Rudgeley

17. Rudgeley
18. Sherif Hales.
19. Stretton
20. Shareſhall
21. Weſton under Lizzard
22. Wheaten Aſton
23. Churcheaton.

Offley Hundred contains fifty-one pariſhes.

1. Alrewas
2. Armitage
3. Aldridge
4. Burton on Trent
5. Barton under Needwood
6. Bloxwich
7. Barr
8. Clifton Campville
9. Drayton Baſſett
10. Darlaſton
11. Elford
12. Farewell
13. Hanbury
14. Hamſtall Ridware
15. Harbourne
16. Hammerwich
17. Haſelour
18. Harleſton
19. Hints
20. Handſworth
21. Longdon
22. King's Bromley
23. Litchfield St. Chad's
24. Litchfield St. Michael's
25. Marchington
26. Maviſton Ridware
27. Newborough
28. Norton under Cannock
29. Pipe Ridware
30. Pelſall
31. Rolleſton
32. Rowley Regis
33. Ruſhall
34. Smethwick
35. Shenſtone
36. Statfold
37. Tutbury
38. Tatenhill
39. Thorpe Conſtantine
40. Tamworth
41. Tipton
42. Wichnor
43. Whittington
44. Wigington
45. Weeford
46. Walſall
47. Wednesfield
48. Willenhall
49. Wedneſbury
50. Weſt Bromwich
51. Yoxall.

Seiſdo

Seisdon Hundred contains twenty parishes.

1. Amblecott and Brierly Hill	11. Kinfare
2. Areley Over	12. Kingswinford
3. Bilston	13. Pattingham
4. Broome	14. Pattesshall
5. Bobbington	15. Penn
6. Bushbury	16. Sedgeley
7. Codshall	17. Tettenhall
8. Clent	18. Trysull
9. Enville	19. Wolverhampton
10. Himley	20. Wombourne.

		Parishes.
Total	Totmanslow Hundred	40.
	Pyrehill Hundred,	47
	Cuddlestone Hundred,	23
	Offley Hundred,	51
	Seisdon Hundred,	20
	Total Parishes in the County,	181

The population of this county is very considerable, and has been of late years much increasing, a large proportion of its inhabitants being otherwise employed than in agriculture, viz. in mines and manufactures. Some of the country parishes are almost incredibly populous. Sedgeley, for instance, contains upwards of sixteen hundred houses (I have been told two thousand), and probably ten thousand inhabitants. Rowley, West Bromwich, and Bilston, have, probably, five thousand inhabitants each. Wednesbury, Darlaston, Willenhall, Handsworth, and Tipton, are very populous. The town of Wolverhampton previous to the present war, by the enquiries of an intelligent person employed in a poor's rate assessment, contained eighteen thousand five hundred

 people;

people; whereas, by a ſurvey in 1750, its inhabitants were only ſeven thouſand four hundred and fifty-four. Walſall now, or, at leaſt, previous to the war, contained, in what is called borough and foreign, which includes part of the neighbourhood, about thirteen thouſand inhabitants. This is proved by a penny dole which has long been given annually to all ranks of people there. The number meaſured by the ſame ſtandard, in the thirtieth year of Henry the Eighth, was one thouſand eight hundred and nine; and in 1686, according to Plott, not exceeding five thouſand five hundred; and in ſuch proportion has the population there been progreſſively increaſing. The Potteries in the neighbourhood of Newcaſtle-under-Lyme employ and ſupport a population of about twenty thouſand people, excluſive of thoſe in other employments: the population there has been moſt rapidly increaſing for many years preceding the preſent war. The pariſh in which I live (Tettenhall), on a calculation from the number of births and burials annually, has increaſed in population during the preſent century as two to five. It is compoſed of people employed both in trade and agriculture; and its preſent number of inhabitants are about two thouſand. Upon a retroſpect of the whole, and conſidering all the data I can collect, I am of opinion, that the population of this county previous to the preſent war was about two hundred and fifty thouſand, and that its population has at leaſt been doubled during the preſent century.

AGRICULTURE OF STAFFORDSHIRE.

SOIL.

THE ſoil of this county (and probably that of every other diſtrict in the kingdom of equal extent) is various. The arable

ble ſoils may, in general, be divided into, firſt, the ſtiff and ſtrong, clayey (argillaceous); ſecondly, the looſe and light, ſandy (arenaceous); thirdly, although the county has no chalk, yet in the limeſtone diſtricts, lime earth (or calcareous); fourthly, the mixed, or compound ſoil or loam, compoſed of the above with the addition of ſtones and other matter *(terræ compoſitio)*. Alſo, ſome uncultivated and other ſpots contain a thin light black earth, of the nature of peat, generally lying upon gravel: this, when pulveriſed and dry, is very light, but when thoroughly wet is ſo retentive of moiſture as to reſemble mud. The meadow ſoils are in ſome places ſimilar to the arable, with the addition of the ſediment of water when within reach of ſtreams; in other places compoſed of peat earth of different thickneſſes to ſeveral feet, ſometimes containing trunks of trees. This peat earth ſeems to conſiſt principally of the decayed roots of aquatic vegetables, but when drained, conſolidated, and meliorated, by top dreſſing or irrigation, becomes valuable meadow and paſture land: the ſurface of this kind of land will, upon draining, ſink ſeveral inches.

The firſt general diviſion of clay ſoils conſiſts of two varieties: firſt, the ſtrong, ſtubborn, harſh, tenacious clays, or clay loam; ſecondly, the more mild, tractable, or friable marl or loam. The ſandy ſoils are more or leſs light, and in ſome degree intermixed with loam, gravel, or other matter; the mixed ſoils are alſo various, and may be termed loam, gravelly loam, ſandy loam, &c. according to circumſtances.

The excellency of all good ſoils, probably, depends on the component parts being intermixed in a happy proportion; in their being of a ſufficient thickneſs upon the ſub-ſoil or under-ſtratum; in the compoſition of ſuch under-ſtratum being neither too ſolid or compact to retain and ſtagnate all the falling moiſture, nor too porous to let it paſs off too quick; and

in

in the ſurface lying with a proper aſpect to receive the ſolar rays, and to let off the ſuperabundant moiſture. A large proportion of clay gives too much tenacity, and retains too much water. Where ſand predominates, the ſoil being too porous, ſuffers the water to paſs through, or evaporate, and retains too little. Marl and calcareous earth are excellent correctors of both theſe defects. Stagnant water, by its chillneſs and want of motion, is death to vegetation: hence the neceſſity of draining wet ſoils. A due admixture of vegetable matter enriches the compoſt, and the action and heat of the ſolar rays upon the whole maſs, bring on a gentle fermentation, and give life and vigour to the latent and prolific principles of vegetation contained therein. Where Nature has left her work unfiniſhed, it is the buſineſs of art, and of the farmer's profeſſion, to aſſiſt and forward her operations, and to aſſimilate, as much as poſſible, ſuch unfiniſhed ſpots to thoſe which ſhe has left neareſt perfection: he who does this in the moſt rational and complete way, is the beſt farmer.

DIVISION OF SOILS.

	Acres.
THE groſs acres of the county, as ſtated before, are about	780,800
Deduct for roads, lakes, pools, ponds, rivers, canals, cities, towns, villages, buildings and yards, one acre in twenty,	39,040
Waſte lands, foreſts, woods and impracticable land,	141,760
Deduct	180,800
Remains cultivated land	600,000
Of the waſte and foreſt lands, it is probable that the reclaimable part amounts to	100,000

Of

Of the ſix hundred thouſand acres of cultivated land, in which claſs I mean to include the paſture part of parks, I eſtimate one hundred thouſand acres may be meadow and paſture, and five hundred thouſand acres arable. The arable land may be reckoned, two hundred thouſand acres of clay loam, or more friable mixed loam; two hundred thouſand acres of gravelly or ſandy loams, or other mixed, including calcareous ſoils; and the remainder, or one hundred thouſand acres of light, ſandy, gravelly, or other ſoils, which, though not perhaps wholly adapted to, are yet capable of producing turneps.

The farms of this county are of all ſizes, from twenty acres to five hundred; yet it muſt be acknowledged, that within the laſt twenty or thirty years the conſolidation of ſmall farms has been not uncommon: And indeed a farm of twenty or thirty acres is too ſmall for the ſole employment of a farmer, and only adapted to people retired from buſineſs and preferring to live in the country; or to country-tradeſmen, who, having other buſineſs, do not depend on the ſmall farm for their main ſupport. Farms of the ſmaller ſize are inſufficient to pay a fair rent and maintain a family; and, unleſs the occupier has induſtry and reſolution enough to ſubmit to working regularly for others, generally entail poverty on himſelf and family. Yet, I think, it would be a ſpur to ſteadineſs, exertion, and induſtry, if a proper proportion of ſmall lots of graſs land, ſufficient to keep one, two, or more cows, were added to tenements, and reſerved for the more ſteady and induſtrious labourers, who might in ſervice have ſaved money enough to ſtock ſuch premiſes, and who, upon marrying, might leave principally to the wife the care of ſuch ſtock; ſuch land not on any account to be broken up, except ſuch portion of it, as ſhall be allowed for gardens.

The farms of Staffordſhire are very generally, and with ſcarcely a ſingle exception, employed in a mixture of both

paſture-

pasture and corn; some occupiers inclining one way; some the other, according to circumstances, and perhap part, according to the disposition of the occupier. The seeds generally sown for laying land to permanent ture, are, 1. Red clover *(trifolium pratense)*; 2. V clover *(trifolium repens)*; 3. Trefoil *(medicago lupul* 4. Ray grass *(lolium perenne)*; also hay seeds coll from the loft, in which every attentive person is as care he can be to make a good selection, by reserving the hay from the produce of lands the cleanest from weeds addition, many persons, with a laudable view to improve have attempted to introduce fresh grass seeds; particu first, the meadow or cow clover: but I believe there ar if any, instances here wherein it has not turned out to b usual biennial clover.

2. Burnet *(poterium sanguisorba)* has been sow many persons of late years, and by some on a broad I know it from experience to be a valuable addition tc pastures, hardy, and strictly perennial. Cows prefer it tc ver, and it is doubtless wholesome for them: sheep and l prefer clover; and it is by no means so productive as the b leaved red clover. A very attentive friend and neighb of mine, who keeps a very large dairy, and has for some back sown large quantities of this plant, is so very part it, that he would this year have sown ten hundred weig the seed, could he have procured it. It is certainly a mixture with other herbage, with which it but little inter drawing its nourishment deep from the earth by a lon root. It is a native of some of the Midland Counties, dry calcareous soils, particularly Rutlandshire, whe abounds spontaneously in common fields, road sides, and

* Mr. Miller.

upon commons wholly uncultivated, it is a very different plant to the meadow burnet (*sanguisorba officinalis*), springing out and flowering some months earlier. I have since found it indigenous in the Moorlands of Staffordshire, particularly on the Wever Hills, and between Wetton and Warslow.

3. Sainfoin (*hedysarum onobrychis*) has been tried, but has not succeeded, and the soil is probably not adapted to it.

4. Lucern (*medicago sativa*) has had several small experiments. It requires cleaning with a good deal of care for the two or three first years, after which you can scarcely destroy it. I had early this spring a garden bed of this plant dug under (being tired of it), which notwithstanding is now shooting out vigorously. There is some reason to dispute its superiority to red clover, either in quality or bulk of produce.

5. Rib grass (*plantago lanceolata*) is also sown in considerable quantities, and by many approved as a good mixture with clover and ray grass. There is good authority for asserting that cattle will not eat it alone; but it is believed to be a grateful mixture with other herbage.

None of the native individual grasses have, to my knowledge, been cultivated in this county, except the ray grass before named, and the oat grass (*bromus mollis*), though many of them are apparently much more worthy of it. In addition to the cultivated plants before named, the following is a list of our principal spontaneous pasture and meadow herbage, in which each species is placed in rank according to the writer's conception of its merit; but such superiority being matter of opinion, may possibly be varied and otherwise decided by future experience and observation.

1. Meadow grasses (*poa pratensis et trivialis*).

 2. An

2. Annual meadow grafs *(poa annua)*, a fweet and fine grafs, but not very productive, might with propriety be termed *poa quadrans annua*, as it will produce and reproduce itfelf by its ownfeed four times a-year. Could the feed be procured in fufficient quantities, it is certainly well worthy of cultivation, producing in quick fucceffion an infinity of blades of grafs, and being a fweet and fine pafturage.

3. Meadow fefcue (*fefluca pratenfis*).

4. Foxtail grafs (*alopecurus pratenfis et agreftis*).

5. Soft grafs (*holcus lanatus*).

6. Dogstail graffes *(cynofurus criftatus et echinatus)*.

7. Vernal grafs *(anthoxanthum odoratum)*; fine, fweet and early, but not very productive.

8. Rough cock's-foot grafs *(dactylus glomeratus)*; coarfe but very productive, and by fome much efteemed; probably makes good hay intermixed with the other finer graffes.

9. Water meadow grafs (*poa aquatica)* grows very tall, to fix feet high and upwards; extremely productive; very common by the fides of ftreams, in hedges, and fometimes in pretty broad patches on water meadows. Mr. CURTIS informs me this grafs is cultivated in the Ifle of Ely, and it is probably well worthy of attention in proper fituations.

10. Meadow oat grafs (*avena pratenfis)*.

The above graffes are certainly all well worthy of trial in cultivation; the following alfo are common in meadows and paftures.

11. Bent graffes of forts (*agroftis's*, principally the *capillaris alba et ftolonifera)*. Thefe, though valuable in meadows, are very noxious and troublefome in arable land, being the bafis of that curfe to the plough farmer, the black or beggarly couch or fquitch grafs. Thefe graffes are fo hardy, that they will grow in any foil moift or dry; and the more

land

land is run out, beggared, or impoverifhed by hard tillage, the more they will run in the root and abound.

12. Tall oat grafs (*avena elatior*). This, though a troublefome weed in arable land, (being the knobby or bulbous-rooted couch grafs) is yet probably worthy of cultivation in meadows, being very hardy, productive, and flourifhing in all feafons; it makes good hay intermixed with other finer grafles.

13. Dogs, couch or fquitch grafs (*triticum repens*); not very common in meadows and paftures, but thiefly abounding in gardens and hedges. The common fquitch grafs of arable lands has been often erroneoufly called by this name.

14. Flote grafs (*feftuca fluitans*); generally growing in water, it is a fweet and good herbage, and very productive. Many a poor old horfe has been bogged in fearching for this grafs, of which they are remarkably fond. A botanical friend * has obferved, that geefe are very fond of the feeds of this grafs, and well know where to look for them.

The other moft common grafles are, Timothy grafs (*phleum pratenfe*), hair grafs (*aira cæfpitofa*), quake grafs (*briza media*), brome grafs (*bromus erectus, arvenfis & fterilis*), meadow barley grafs (*hordeum pratenfe*), creeping foft grafs (*holcus mollis*): alfo in wet, boggy, or fwampy fituations, various forts of feg grafles provincially hard grafs, iron grafs, carnation grafs (*carex's*): thefe, upon draining and top-dreffing their native bogs, generally give way to the more valuable grafles.

The other principal meadow herbage valuable for hay and pafturage is, 1. The meadow or cow clover (a variety of the *trifolium pratenfe*); the feed of which is profeffed to be fold under the name of cow grafs.

2. Long-leaved perennial clover (marl grafs of HUDSON, *trifolium flexuofum*); common in hedges and ditch banks in

* Dr. WITHERING.

 the

the clayey ſoil in the pariſh of Blymhill. Being perennial, and growing ſpontaneouſly in ſtrong ſoils, the Rev. Mr. DICKENSON highly recommends the cultivation of it in ſuch ſoils mixed with common clover and ray graſs. This plant is alſo common here upon mixt gravelly loam, ſometimes in ſhady, and ſometimes in open ſituations; but having a diſpoſition naturally to propagate itſelf by running in the root, I am afraid its ſeed will not ripen in ſufficient quantity for any conſiderable ſcale of cultivation: the attempt of raiſing its ſeed is however well worth making.

3. Trailing trefoil (*trifolium procumbens*); a ſweet, fine and good herbage.

4. Bird's foot trefoil (*lotus corniculatus*); in all ſituations open and ſhady, moiſt and dry, apparently worthy of cultivation. A ſingle attempt of mine to raiſe a garden bed failed; the ſeed of my own gathering never vegetated.

5. Perennial tufted vetch (*vicia cracca*); excellent paſturage, and a good mixture in hay; not uncommon in hedges and meadows; highly worthy of cultivation. This perennial vetch is diſtinguiſhed from the common annuals by its long fruit-ſtalk, upon which the flowers and pods are ſupported at a diſtance from the ſtem; whereas thoſe of the annuals are ſhort and cloſe to the ſtalk.

6. Meadow vetchling (*lathyrus pratenſis*); in hedges and meadows; common. For the cultivation of this plant a premium has been offered, I believe, by the Bath Agriculture Society; yet there is reaſon to think that cattle are not fond of it, I having often obſerved it untouched on the hedge-ſide of a ſtocked paſture: it is probably moſt proper as a mixture in graſſes for hay, and poſſibly eaten by cattle mixed with graſſes.

7. Meadow burnet (*ſanguiſorba officinalis*); common and plentiful in ſome meadows; alſo growing very luxuriantly in cold and very poor wet upland, particularly on Bentley eſtate near Walſall, and between Walſall Wood and Cannock Heath: a hint from nature that it ſhould be cultivated on ſuch land, as it certainly ſhould, if its ſeed can be preſerved in ſufficient quantity.

8. Meadow ſweet (*ſpiræa ulmaria*); coarſe, but not diſeſteemed by ſome. The farina or duſt of the ripe bloſſoms of this plant, which is very abundant, is, I have been told, an excellent ſtyptic, and has been uſed with great ſucceſs in ſtopping hæmorrhages.

9. Cow weed (*chærophyllum ſylveſtre*) has an uncouth and weed-like appearance, reſembling hemlock, but paler in colour; is very common in ſome meadows and paſtures, and has been uſed as a pot herb. According to CURTIS, cows are ſo fond of it, that when a paſture is overrun with it, as is often the caſe about Dudley, they always turn them in to eat it up, as obſerved by Mr. WAINWRIGHT, in WITHERING'S Botany. It is very common about Wolverhampton and Wednesfield. Cows eat it greedily, and I believe it is wholeſome for them.

10. Meadow ſorrel (*rumex acetoſa*); common in meadows. All ſorts of cattle eat it, and I doubt not that its acid is grateful and wholeſome to them, and I believe it to be good herbage.

11. To theſe I ſhall add the crowfoots (*ranunculus's*), ſo very abundant in our meadows and paſtures, and which, tho' in themſelves ſo acrid and pungent, are notwithſtanding moſt certainly a grateful and deſirable admixture. They ſeem intended as ſeaſoners and correctors, and to be adapted to uſes in the animal œconomy ſimilar to that of ſalt, muſtard, pepper and vinegar at our tables; to correct the flatulent or putrid:

trid qualities of the more palatable and luxuriant dishes on the great table of nature. It is said in WITHERING's Botany of the *ranunculus acris*, that "cows and horses leave "this plant untouched, though their pasture be ever so bare." I believe this to be only true of the flower stem, or when there is not a sufficient admixture of other more palatable herbage.

The following I consider as neutral plants, or such as are neither worthy the farmer's attention to encourage their growth, nor his efforts to destroy: the foliage of many of them is eaten by cattle without injury, either green or in hay, in common with other herbage.

1. Dandelion (*leontodon taraxacum*); very common; considerably diuretic; has probably a good effect upon cattle, from that quality, at their first going to grass.

2. Daisy (*bellis perennis*).

3. Daffodil (*narcissus pseudo-narcissus*).

4. Harebell, English hyacinth (*hyacinthus non scriptus*).

5. Fritillary (*fritillaria Meleagris*). This very curious and rare flower adorns in great profusion some meadows about one mile from Blymhill, in the parish of Wheaten-Aston, as observed to me by the Rev. Mr. DICKENSON.

6. Cowslip (*primula veris*).

7. Primrose (*primula vulgaris*).

8. Lady-smocks, several sorts (*cardamines*); principally the *pratensis* and *hirsuta*; the foliage probably wholesome food.

9. Wood or meadow anemone (*anemone nemorosa*); very common here in meadows; the flowers fold up in a curious manner against rain; the whole plant is acrid: when sheep that are unaccustomed to it eat it, it brings on a bloody flux, as observed in WITHERING's Botany.

10. Goose

10. Goose grass (*galium paluſtre & uliginoſum*).

11. Biſtort (*polygonum biſtorta*); common in moiſt meadows; alſo in very high paſture ground at Eſſington, in the pariſh of Buſhbury. The root is one of the ſtrongeſt vegetable aſtringents, as WITHERING informs us. If it would tan leather it would be worthy of cultivation, the root being productive and the ſpecies prolific. This plant in ſome places wholly occupies large patches of ground, to the injury of better herbage.

12. Cinquefoils (*potentilla verna & reptans*).

13. Meadow rue (*thaliſtrum flavum*); in a meadow on my farm in conſiderable quantity.

14. Valerian (*valeriana officinalis*).

15. Orchis's, ſeveral ſorts.

16. Meadow boot (*caltha paluſtris*).

17. Ladies mantle (*alchemilla vulgaris*).

18. Yarrow (*achillea millefolium*). Sheep and cattle eat it, and it is recommended for cultivation on poor land, by ANDERSON.

19. Reſtharrow (*ononis arvenſis*); rather to be extirpated than encouraged, though cattle will eat it when young, and it is very productive. The roots of it are very troubleſome in arable land, being ſtrong, and almoſt ſtopping the plough. In ſome of the chalk counties I have obſerved a worſe kind ſtill, *viz.* the prickly, thorny, or ſpiny reſtharrow (*ononis ſpinoſa*), but I have never found any in Staffordſhire except the ſmooth plant firſt named.

20. Yellow rattle (*rhinanthus criſta galli*).

21. Red rattle or louſe wort (*pedicularis ſylvatica*). This ſhould rather have been claſſed amongſt weeds or noxious plants, as WITHERING ſays of it, that if the healthieſt flock of ſheep be fed with it they become ſcabby and ſcurfy in a ſhort time, the wool gets looſe, and they will be overrun

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by vermin: it is, doubtless, a bad plant, but may be weakened or destroyed by draining the land.

22. Eyebright (*euphrasia officinalis & odontites*).

23. *Veronica's*, several sorts.

24. Purging flax (*linum catharticum*).

25. Centaury (*Chironia centaurium*).

26. White saxifrage (*saxifraga granulata*); on meadows in the Moorlands.

These are the most common, many others are omitted. Some of them have their known uses; to others no attention is paid, but what they claim from the beauty of their flowers; and perhaps, as Dr. WITHERING has observed, a display of beauty may have been in some measure the design of the Great Creator.

Weeds, or noxious plants, common in pasture and meadow land, which the farmer's industry should be employed in destroying and extirpating are,

1. Dock (*rumex crispus*); to be destroyed only by perseverance in rooting up.

2. Thistles of sorts (*carduus's*), particularly the *lanceolatus palustris* and *pratensis*: they should be cut off within the ground or rooted up.

3. Nap weed (*centaurea nigra & scabiosa*) should be rooted or cut up, being useless and unsightly.

4. Ramsons (*allium ursinum*), meadows at Horsebrook and elsewhere, gives a garlick flavour to milk.

5. Goose tansy, silver weed, or feathered cinquefoil (*potentilla anserina*); common in many pastures, but generally untouched by cattle; should therefore be extirpated to make room for better herbage.

6. Rushes of sorts (*juncus's*); a sure indication of stagnant water, and that the land wants draining.

7. White dead nettle (*lamium alba*).

8. Hog

8. Hog weed, or cow parſnip (*heracleum*). This plant (Variety 2. the *anguſtifolium*) is very abundant in an upland mowing meadow near Dudley Caſtle; and though I believe cattle will eat it without injury, yet it is certainly too coarſe and weed-like to be ſuffered to abound in well managed land.

9. Wild carrot (*daucus carota*).

10. Dog's mercury (*Mercurialis perennis*); very common in the ſides of hedges. WITHERING's Botany ſays this plant is noxious to ſheep; which if true, ſome pains ſhould be beſtowed in its extirpation.

11. The common curſed or way thiſtle (*ſerratula arvenſis*); every where.

The leading features of improvement to be effected by agriculture upon meadow and paſture land ſeems to be,

1. By draining of all boggy, ſwampy, and moraſſy ſpots, either by open or hollow drains.

2. By improving the herbage where rough and coarſe, either by weeding and top-dreſſing, or by pulverizing and ſeeding down with a judicious ſelection of proper ſeeds, and laying the ſurface in a form and diſpoſition to clear itſelf of ſurface water, and receive future improvement.

3. By extending as much as poſſible the practice of irrigating the ſurface of all land capable of that improvement, with water judiciouſly applied, and properly taken off.

4. By top-dreſſing with the moſt ameliorating manures that can be procured.

5. By ſtocking at proper times, and with a properly mixed ſtock; by which management the herbage being cloſely bitten will be kept fine, and the ſurface not being trodden in or poached upon will be kept regular. There are few ſpots ſo barren or ungrateful which by this mode will not be made

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uſeful meadow and paſture land. Conſiderable attentio
at preſent paid to theſe ſubjects by many ſpirited and jud
ous managers. The particular points above alluded to
ſeem moſt capable of being extended are the three followin

1. Draining.
2. Irrigation.
3. Improvement of ſtock.

DRAINING.

OF this moſt eſſential improvement of meadow and paſt
land, as well as arable, much remains to be done, though g
exertions have been made in it of late years. The prac
moſt approved here is, after having opened a ſufficient nu
ber of ditches or main drains to a proper depth, to cut fr
and into them a number of drains of about fourteen inc
wide at top, to four or five inches wide at bottom, and th
feet deep; then to fill up theſe, firſt, with a ſmall layer
heath or ling; ſecondly, with pebbles or rock ſtone one f
thick; thirdly, with another layer of ling; then to place the f
ſpit or turf reverſed upon the upper heath or ling; and to fi
up and cloſe the whole with part of the ſoil, and to ſpread
remainder of the ſoil on the ſurface of the land ſo drain
Cloſe drains thus executed will laſt a great length of tim
properly done, and if the open drains ſhall be kept prop
cleanſed out. Other methods are alſo uſed; as that of dra
ing with hollow bricks; that of forming the bottom of
drain with a bearing on either ſide, and a narrower o
ſpace below, with the firſt ſpit or ſod of turf inverted and
turned, and the drain filled up with the ſoil. Theſe are practi
with good effect; but the firſt-named method is moſt gener

approved, in which, where ſtones are ſcarce, wood is ſometimes ſubſtituted. The improvement is generally reckoned to pay the whole expence in two or three years, and within my acquaintance is ſo generally practiſed, that there are few individuals who do not do more or leſs of it every year. This opinion is corroborated by others, particularly the Rev. Mr. WRIGHT of Bradley, who ſays, " more attention has been " paid to that important article of draining lands within the " laſt twenty years, than in centuries before. Covered drains " are commonly uſed." Attempts too have been made to tap ſprings, by boring into them, by Mr. ELKINTON and others, and ſometimes with ſucceſs. Mr. BRADBURN from much experience thinks the beſt method of under-draining to be with hollow bricks, which he ſays are more durable, and ſafe from being injured by vermin, than any other method.

IRRIGATION.

IRRIGATION, or the improvement of land by watering, is, or may be, a very important and extenſive part of agriculture; and though the advantages to be derived from it are generally admitted and well known in this county, at leaſt by all intelligent farmers, yet it is by no means in general carried to the extent of which it is capable; many ſtreams being ſuffered to glide quietly down their own channel, which might eaſily be drawn over the adjoining lands, to their great improvement. This omiſſion is in part owing to neglect; in part to the jealouſy of millers and other perſons intereſted in the ſtreams; and in ſome degree to the beſt methods of extending this application of water not being

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generally and ſufficiently underſtood. The induſtry of many individuals is, however, very properly and ſucceſsfully exerted in this very commendable ſpecies of improvement.

Reſpecting a ſyſtem for irrigation, no general one can apply to particular caſes. Different modes of ſpreading the water muſt be adopted, according to different circumſtances of ſituation and form of ſurface. In all caſes where a ſtream naturally falls down a valley, and the ſides of ſuch valley conſiſt of eaſy and regular declivities, the beſt way undoubtedly is to draw a ſufficient quantity of water nearly upon a level, along a main carrier; ſuch water to be let out of the ſaid main carrier at pleaſure, by ſluices conſtructed in different places in the ſides thereof, into floating gutters; ſuch floating gutters being cut on a level along the ſides of the declivities, one below another. Theſe floating gutters will collect the water from the ſpaces of land above them, and, if well conſtructed, deliver it very regularly upon the ſpaces below each of them reſpectively. The watering in this caſe will require very little attendance, except that of opening and cloſing the ſluices in rotation, ſo as to irrigate different parts of ſuch land ſucceſſively. The gutters too will require an annual cleanſing or ſcouring out, otherwiſe they will choke, and grow up with graſs.

The particular mode of action or operation by which land is benefited by watering, has not perhaps yet been ſatisfactorily explained: yet it is an eſtabliſhed and well known fact, that all waters (except ſuch as are highly putrid) produce a good effect upon land, in ſome degree proportioned to their rapidity or briſkneſs of motion. Thus common water ſuffered to ſtagnate upon, or dribble in ſmall quantities over land, will encourage the growth only of ruſhes, *carex's* (ſeggraſs), and other coarſe *aquatics*, and weaken if not deſtroy the fineſt and moſt valuable graſſes. The ſame water driven

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over the ſame land with a briſk motion, and the ſurface left to dry at intervals, and expoſed to the ſun and atmoſphere, will have a direct contrary effect: the valuable graſſes will flouriſh, and the aquatics be weakened or deſtroyed. Hence it ſhould ſeem, that the good effects of watering are in part produced by mechanical operation, by moiſtening and tendering the ſurface; which circumſtance, combined at intervals with the effects of the ſun and atmoſphere, brings into action the latent principles of vegetation in plants; which principle would have lain dormant, under the influence of chilling or ſtagnant water; or would have been locked up by the matting of turf on the ſurface, had not ſuch turf been ſoftened, and made eaſily penetrable by moiſtening its ſurface. The coarſe aquatics being hardier, vegetate in a leſs degree of heat. They ſeem intended by nature to fill up thoſe vacancies which are yet unprepared for the production of the more valuable tribes, upon this principle in her vegetable œconomy, that a bad plant is better than none: yet upon the proper application of human induſtry they always decline, and give way to thoſe of ſuperior value.

Every one knows the neceſſity there is (previous to improvements by irrigation) of diſcharging the ſtagnant water from, or from near, the ſurface of all lands intended to be ſo improved, by hollow drains or otherwiſe.

As the benefit to be derived from irrigation depends ſo much upon the watering being effected with a briſk motion, and not continued for too long a time, the great deſideratum in this ſpecies of improvement ſeems to be the introduction of reſervoirs conſtructed ſo as to contain large quantities of flood water; which water ſo collected may be ſucceſſively and at pleaſure diſtributed upon any land below its ſurface, and continued with ſuch velocity, and for ſuch length of time, as may be thought proper.

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This idea, as applicable to agriculture, is I believe novel, and may be treated as visionary; but I am so thoroughly convinced of the great advantages to be derived from it, that I will venture a prediction of its being in some future time practised to a great extent. The practice will be much facilitated by the construction of dams being so well and so commonly understood, in consequence of the number of navigable canals which have been, and are still executing. A reservoir of a few acres, and of two yards average depth, may be constructed, at from ten to twenty pounds per acre, according to circumstances of situation. Such reservoirs as a fishery (under proper management) would be equal or superior in value to an equal breadth of land, and the surface water to a certain depth may be drawn down for the purpose of irrigation at pleasure.

Upon this subject of water the following extensive idea is thrown out by an ingenious gentleman *, high in his profession as an engineer; which is, that nine parts in ten of the waters of the kingdom at present run away in waste, great parts of which might be usefully employed; nay farther (putting expence out of the question), that every stream in the kingdom may be made to run equally through the whole year. This position, however extraordinary, is easily demonstrable; for if upon any given stream one or more reservoirs be made capable of containing its flood water, and through the dam or dams be laid a pipe or pipes, whose apertures will just discharge the average produce, the business is done. And though there may be no probability of this business being ever brought to so great a nicety; yet from hence some idea may be formed of the prodigious extent to which improvements by water may be carried.

* *Mr.* Jessop.

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With this subject, and that of forming reservoirs for the purposes of agriculture, is connected another, of great importance in domestic and commercial œconomy; namely, the having an extensive command of the application of water to all mechanical purposes wherein such application will answer better than for irrigation of land, and thus, as it were, arresting every drop of water that falls from the heavens, and rendering it in the most extensive way subservient not only to the immediate subsistence of man and beast, and the improvement of land, but even having the residue solely at command for the purposes of shortening manual labour: such system would certainly be an important addition to the powers required in many of our mechanical operations, and of great importance in a manufacturing country.

A copy of part of the above being sent to Mr. Jessop, I have received from him the following Paper, which I had never seen before.

OBSERVATIONS ON THE USE OF RESERVOIRS FOR FLOOD WATERS.

THE rapid improvements which have for some years past been made in the agriculture and commerce of this country, and the happy effects derived therefrom, naturally excite a desire to investigate every means by which they may be continued and increased.

Among the many causes which have combined to promote our prosperity, the facility of intercourse by inland-navigation is a great and leading feature. All unite in admitting this as a general position; but many, from private motives, or mistaken opinions, have too often prevailed in preventing the execution of useful projects, which, if they could have been

been effected, would have greatly contributed to the national benefit derived from those already eſtabliſhed.

Among the obſtacles that ſtand forward, none are more conſpicuous, nor ſo generally urged, than the want of water in dry ſeaſons. It uſually happens, that where canals are moſt wanted, manufactures or agriculture having already taken poſſeſſion of the ground, and occupied the ſtreams of water, it is plainly to be foreſeen, that, unleſs ſome means are deviſed to reconcile this competition, thoſe deſirable improvements muſt be crippled in their growth, and ſtop long before the age of maturity.

It can hardly have eſcaped any one's obſervation, that ſtreams of water uſed for the purpoſe of working mills, or the more valuable purpoſe of watering meadows, in the few inſtances where this has been practiſed, while they have a ſcanty ſupply in ſummer, they generally diſcharge in winter ſuch ſuperabundance as frequently to do material injury.

There are, in ſome parts of this iſland, exceptions to this general poſition. Where the ſoil is porous, and the ſubſtrata ſo open as to abſorb the rains as they fall, there are no floods: the pores and fiſſures of the earth form reſervoirs or regulators to the ſtreams; they preſerve the winter waters, and ſo equalize the diſcharge, that there is but little difference between their winter and ſummer ſtate; but in clay or other ſimilar ſoils, ſo little is abſorbed, and ſo much ſuddenly glides off from the ſurface, that the extremes of ſcarcity and exuberance are the neceſſary conſequences.

It is now well underſtood, that all natural ſprings derive their ſupply from the waters of the atmoſphere; and they may fairly be conſidered as the diſcharges of natural reſervoirs; it is immaterial whether thoſe reſervoirs may be compoſed of large cavities, or minute fiſſures.

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Leaving expence out of the queſtion, it is poſſible to conceive (however extravagant the idea may appear), that the waters of all rivers might by art be nearly equalized throughout the year: but it will be ſufficient to prove that this is practicable, if applied to ſmall rivulets or brooks, particularly where Nature holds forth a temptation, by furniſhing deep ravines, or capacious hollows on the ſurface of the ground, capable, at a moderate expence, of being made to contain large quantities of water.

We are taught, from the ſimple inſtinct of animals, the provident leſſon of ſtoring up the ſuperabundant ſupplies of one ſeaſon for the wants of another. Neceſſity has compelled mankind, in many countries, to follow their example. In hot climates, the inhabitants could hardly exiſt without ſtoring up the waters of winter for their uſe in ſummer *.

There are inſtances in this country where canals are in want of water in ſummer, while the brooks that ſupply them diſcharge floods, in winter, in one day, ſufficient for the ſupply of the whole year.

Thoſe who entertain doubts of the practicability of making reſervoirs ſufficient for the ſupply of canals, ſtate their objections under three heads: the expence; the want of ſufficiency of water; and the uncertainty of making ſuch reſervoirs to retain it.

When the neceſſary magnitude is aſcertained, the expence is a ſubject of plain calculation; and it is eaſy to determine whether the project, to which it is to be applied, will bear the expence. There have been ſeveral inſtances, where the expences of repelling an oppoſition from mill-owners to a

* At Alicant the King of Spain has made a reſervoir, the water of which, for the uſes of ſummer agriculture, bring him in a revenue of 2000 L. per annum.

Bill in Parliament, would have been more than enough to have made ſufficient reſervoirs.

Whether they can be filled with water may be known before they are undertaken, by an enquiry and meaſurement of the diſcharge in winter.

The waſte of water from a reſervoir is in two ways; by exhalation, and by leakage. The firſt, in a dry ſummer, would conſume about nine inches in depth from the ſurface; the making the head nine inches higher than otherwiſe neceſſary would compenſate for this. The leakage would be in few caſes (where it would be prudent to attempt the ſcheme at all), even upon ſmall ſtreams, more than equal to the ſummer ſupply; and whether the water may be diſcharged by leakage, or by a pipe or artificial diſcharger, if they ſhall both diſcharge into the ſame channel, is not very material. In clay or other ſoils where ruſhes grow, there will be no ſenſible leakage; and in ſoils more open, the pores of the ſoil would be an extenſion of the reſervoir; and in caſes where it might be neceſſary to diſcharge conſtantly from the reſervoir a quantity equal to the ſummer ſtream, it would for a while ſupply that diſcharge.

Even in extreme caſes of leaky ſoils, if there were any ſudden floods, the reſervoir would at leaſt prevent their ſudden diſcharge; but where the ſoil and ſtrata are ſo cloſe as to abſorb little, and cauſe ſudden floods (and it is to theſe caſes that reſervoirs are peculiarly applicable), there is little reaſon to apprehend leakage.

The writer of this has lately had an opportunity of experiencing the effect of a ſmall reſervoir (not yet compleated) as a regulator to a ſtream. It covers at preſent about twenty acres, and is made on a ſmall brook which, in dry ſeaſons, does not furniſh more water than would run through an aperture of an inch in diameter; but is ſub

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ject to floods, which can hardly be discharged by a pipe of three feet in diameter.

There is fixed under the head of it an iron pipe of six inches bore, which during the last winter has almost constantly been open; and discharged a quantity unequal no otherwise than from the difference of pressure by the rising and falling of the water in the reservoir at the different intervals of rainy and fair weather; and when the reservoir shall be enlarged, on the one hand the meadows below will never be overflowed, and on the other hand the reservoir will furnish, in the dry part of summer, *at least twenty times* the quantity of water daily that the brook would otherwise afford.

There is now depending in Parliament a Bill for making a navigable canal through the Vale of Belvoir to the Town of Grantham, where the soil is almost wholly a firm tenacious clay, and will not require above half the water to supply it, which is necessary for canals in other instances.

The country is subject to an extreme scarcity of water in summer, and to great superabundance in winter; and every circumstance is favourable to the intention of supplying the canal by artificial reservoirs. It is therefore earnestly hoped, that those who might be induced by their doubts to repel the intention, under the idea, that because no canal hath hitherto been *totally* supplied by reservoirs, therefore it must be impracticable, will give some credit to those, who, on well-grounded information, have advised the measure; and that they will suffer it to be effected.

It is hoped, that the execution of a canal upon this system may tend to promote the extension and continuance of those improvements in commerce and agriculture, on which so greatly depend the prosperity of this country; and which,

in many inſtances, already have been checked, by neglecting to uſe the aſſiſtance of art in remedying the defects, or rather in uſing or improving the bounties of Nature.

Written in May 1792.

W. JESSOP.

Farther, reſpecting the particular ſubject of applying water to the improvement of land, though this practice is by no means carried to the extent of which it is capable, and large quantities of flood-water are loſt (which in the tenacious clay ſoils that abound over a conſiderable part of this country can be retained in no other way than by artificial reſervoirs), yet conſiderable exertions are made in this buſineſs by many perſons, and omitted by few who have the means of doing it; almoſt every occupier who has a ſtream through his meadows, beſtowing conſiderable attention to it in floods. Amongſt others, my neighbour Mr. MILLER, of Dunſtall near Wolverhampton, has upwards of one hundred and eighty acres of land capable of irrigation; and when water abounds, it is applied to this purpoſe in various ways. Upon his farms are two mill-ponds, and the mills kept in uſe in his own hands. The jealouſy of the millers below upon the ſame ſtream prevents his applying it to this purpoſe at any other time except when there is plenty of water; on which occaſion he often rakes up the mud of his mill-ponds, by ſmall harrows dragged in them to and fro by ropes; which mud is by this means ſent in the water over the land; which water is drawn in floating gutters to every part of the land the level will admit; and the conſequence is an early and plentiful hay-harveſt, often after ſpring-grazing. There are few inſtances in this county of land formed artificially for the purpoſe of receiving water by irrigation, by being laid in broad ridges; and the few I

have ſeen would certainly induce any attentive perſon to reject the method. The ſoil is ſeldom left equally upon the land; and the length of time loſt before a good turf can be reſtored, is a great objection to the practice: and as the water may, in almoſt all caſes, be as well applied upon an even ſurface, variouſly diſpoſed, as land often is by nature, I think ſuch mode of application is to be preferred to breaking the turf, and giving it a new form. Upon the eſtate of LORD BAGOT, adjoining Tedbrook, I obſerved a conſiderable tract of formerly moraſſy land, after draining and being made ſound, prepared for irrigation in a very ingenious way; without altering the natural diſpoſition of the turf, the buſineſs effectually done, and meant to be gradually and progreſſively extended down the valley. At Stoke, near Stone, about fifty acres of meadow land are watered in a very ſuperior ſtyle, from the Trent and from land floods, by Meſſrs JENKINSON. Here the main gutters or carriers are conſtructed with ſome fall down the land; and from them are cut ſideways a proper number of floating gutters upon an exact level. Below each of theſe floating gutters, in the main carriers, are fixed wooden trunks laid in a puddle, with a ſliding paddle to each; by means of which the water is either kept back along the floating gutters, and ſo forced upon and over the land, or drawn down the main gutters and off the land at pleaſure: the gutters are generally conſtructed deep enough to drain the land, when not uſed for floating. Theſe meadows have been much improved by this practice, which commenced about ſeven or eight years ago; before which, I was informed, they were of little value; but at preſent, after ſpring-grazing, they mow a full crop of hay, and are improving every year.

STOCK.

STOCK.

THE profitable ſtock of the Staffordſhire, and generally of all Engliſh farmers, conſiſts of, firſt, horned cattle; ſecondly, ſheep; thirdly, horſes; fourthly, hogs.

Firſt, Horned cattle. The horned cattle of this county are very generally of the long-horned breed, varying in value and quality in proportion to the attention of the breeder and his reſources for keeping. It is a dogma almoſt eſtabliſhed into a maxim by many experienced farmers of the old ſtamp, that "all breed is put in at the mouth;" whilſt the modern breeder upon the BAKEWELLIAN ſyſtem will boaſt that the merit of his breed conſiſts in their capability of doing well upon the leaſt quantity of food of the ordinary kind. There is no doubt but both parties have wandered beyond the true bounds of nature; as all good ſtock muſt be both bred with attention and well fed; and perhaps it is neceſſary that theſe two eſſentials in this ſpecies of improvement ſhould always accompany each other; for without good reſources for keeping, it would be in vain to attempt ſupporting a capital ſtock, and with ſuch reſources it would be abſurd not to aim at a breed ſomewhat decent in quality. The cattle ſtock of this county hath for years back been (and are at preſent) in ſome degree improving; but all general improvements muſt be gradual and a work of time. It is not in the power of every farmer, or even of the generality of them, to pay the prices for prime ſtock; and if they could, the improvement of their meadows and paſtures ſhould go hand in hand with that of their ſtock. Mr. MILLER's idea, which I cannot but approve, and wiſh to ſee in practice, is, that gentlemen of fortune ſhould procure, for the uſe of their tenants, the beſt bulls, rams, ſtallions, &c.

This,

This, if they did not chuſe to do *gratis*, might eaſily be thrown upon a plan to indemnify expences, and would tend very much to facilitate the improvement of the ſtock of the ſmaller farmers.

The great objects in the produce from horned cattle being, firſt, milk; ſecond, beef; the uniting of theſe two products in the greateſt quantity from the leaſt food or produce of land, ſeems the ultimatum of breed. It has often been obſerved, that cows with the beſt diſpoſition to fatten, not only give the leaſt milk, but ſooneſt go off their milking; whilſt a looſe, open, ill-made cow will both give a larger quantity and continue it longer; but is not ſo eaſily fatted, nor without much more time: the uniting of theſe two qualities in the higheſt degree is therefore the true deſideratum of breeding. The cows of this county will generally give from eight to twelve quarts of milk at a meal (and in ſome inſtances more), and two meals *per* day; but this only in the prime ſeaſon of graſs, May and June; they decline afterwards to three fourths, one half, and one fourth of that quantity, and for two or three months are quite dry. Value of a ſtore cow in calf, or with a calf, generally from ſeven to twelve guineas: when fat they will weigh from ſeven ſcore (one hundred and forty pounds) to twelve ſcore (two hundred and forty pounds) the quarter; and are worth in that ſtate, from eight guineas to twenty guineas each; and in ſome few inſtances their weight and value have been much greater.

It is ſaid that five hundred weight of cheeſe *per* ſeaſon will be ſometimes made from a cow, but I believe in general the produce will be nearer half that quantity. Dairies extend from ten, fifteen, and twenty cows to forty, and in a few inſtances to more, even to ſeventy cows.

No-

No great number of oxen are fatted in this county; the few bred therein are generally sold at the neighbouring fairs, and driven to fat nearer the metropolis.

The above account is meant to apply to the general cow stock of the farmers of this county; some few instances are to be found where the breed has been carried to a much greater perfection, especially in carcase. The following instances of capital or superior stock came under my observation.

May 20, 1794, viewed the cow-stock of Mr. PRINCEP of Croxhall. His land is mostly but not wholly in Derbyshire, and therefore more properly belongs to the Report of that county. I shall just observe, that they are of the long-horned breed, and by long attention have been brought to a very high degree of superiority; large, thick, heavy, and well-made, with a pretty good show for milking, and such a disposition to fatten, that Mr. PRINCEP observes, the young stock are obliged to be almost starved by short pasturage, otherwise they run fat and never stand the bull: the cows give upon the average about eight quarts of milk each, which the owner thinks equal, from its superior quality, to a much greater quantity from inferior breeds. Mr. PRINCEP's bull named Bright, which always has and will invariably be kept for his own stock, is a majestic noble animal; large, thick, heavy in the valuable points, with the least imaginable proportion of offal; with a skin handling soft and sleek. This majestic animal is so gentle and docile, that three or four persons at once may handle him without the least sign of ferocity or even notice on his part. Bright-Eye, the son of Bright, now three years old, is a beautiful and most complete animal, and it requires a person of superior skill to that which I possess to find a single fault in him.

At Fisherwick, LORD DONNEGAL's, are also some very fine large and well-made cows of the long-horned breed, and pro-

mising well for milking. An ox was fatted here, (of Mr. PRINCEP's breed) and slaughtered in the spring of the present year, 1794, of which the following are particulars:

Weight of the four quarters,	1988 lb.
Ditto of tallow,	200
Ditto of hide,	177

This ox was worth fifty guineas: another, very little inferior, was slaughtered for the use of his Lordship's family the Christmas preceding.

At Blithfield, the seat of LORD BAGOT, the cow-stock, both his Lordship's and the steward's (Mr. HARVEY's), of the long-horned breed, are very superior, having been for many years crossed from the stock of the first-rate breeders. The dairy is a great object in this neighbourhood, in which cheese is the principal article, though a good deal is done in the feeding way. In his Lordship's pasture I observed a good many Scotch bullocks, as well as some very fine oxen of his own breed.

At Teddesley Park, Sir EDWARD LITTLETON's, the cow-stock is very superior; a few of the cows may rank with the best in the county: they are long-horned and good milkers, and each has a heavy and well-made carcass: here is also a yearling bull, beautiful both in make and colour, and of a good size, with some very good feeding cows and oxen.

Fine large and good cows are to be found in the possession of many farmers all over the county. At Mr. HUSKISON's, at Oxley near Wolverhampton, there have been two recent instances of cows bred on the farm and fatted there to upwards of eighteen score the quarter: the last, slaughtered in the present spring, Mr. HUSKISON informed me weighed three hundred and seventy-four pounds the quarter. These cows paid the butcher forty guineas each; and there are now many good cows on that farm, and a bullock of

the breed of the above cows which promiſes to be very large and heavy.

My neighbour Mr. MILLER of Dunſtall has the largeſt and beſt dairy that I know in the county. The number of his milkers are upwards of ſeventy, moſtly of the long-horned breed; with ſix or eight cows without horns. The main object is cheeſe, of which at leaſt four hundred weight is made per cow. Early in the ſpring he fats calves for the butcher, and they are ſold at eight or ten weeks old at three or four guineas a-piece, and ſometimes for more. The cows, when taken from the dairy, or when accidentally barren, are alſo fatted for the butcher upon the farm, and ſold from ten to twenty, and ſometimes twenty-five pounds each, and ſeldom any are ſold in ſtore order, or in any other way. Mr. MILLER, in his cow management, has two main objects in view, milk and beef; in purſuit of which the carcaſs and the milk-bag are equally attended to; and the cows here are generally of good ſize, good milkers, and well-made, with a diſpoſition to fatten. The dairy too is managed in a firſt-rate ſtyle. Mr. MILLER has a large breadth of land capable of improvement by irrigation, of which he ſeldom fails to make the beſt advantage. This, by furniſhing an abundant ſupply of winter keep, enables him to maintain not only the above number of dairy-cows, but alſo a conſiderable ſtock of young cattle.

The cows of this neighbourhood are of various colours; red, white, black, and party-coloured; but the red, with or without ſtreaks or patches of white, are moſt prevalent; and the cows in general of the county are better or worſe in proportion to the reſources of the farm they live on, for hay and paſturage. Thoſe farmers, perhaps, who have not natural meadows, or ſtreams of water to improve them, do not make cow-ſtock an object of much attention; and indeed, notwithſtanding the plauſibility of the theory, that a

well-bred beaſt will do well on the worſt ſoil, it will ſeldom be found, in fact, that good ſtock exiſts any where but where good keeping is found; and that to maintain and improve ſuch ſtock, the improvement of meadows and paſtures muſt be a primary object, and a ſupply of good ſummer and winter proviſion for ſuch ſtock muſt be ſecured before ſucceſs can be expected in improving the breed: and farther, that ſtock and the land on which they feed ſhould have ſome analogy in quality, ſeems in part owing to phyſical as well as natural cauſes; for on a poor ſoil the occupier being, as it were, poverty-ſtricken, will have little of that energy, ſpirit of enterprize, and exertion, which are neceſſary towards inſuring ſucceſs in all attempts towards improvement; the neceſſary expences towards which are only to be born by thoſe in eaſy circumſtances, and which will ſeldom be the caſe with tenants at rack-rent on poor land. The next ſtep towards improving ſtock, after providing for them the beſt keep circumſtances will admit, is certainly by a ſelection of breeding ſtock; but this muſt be done by degrees, for the pecuniary circumſtances of but few will admit of a total change. How much ſoever they may diſapprove of what they have in poſſeſſion, they can only reject a few of the inferior: this, however, is in their power, and by always ſelecting the beſt for breeding and rearing, improvement will in time be effected. Great improvements in cow ſtock are doubtleſs to be made by a proper ſelection of the beſt heifers in carcaſs and milk bag for breeding ſtock, but more particularly by a judicious choice of the bull; a principal mode to improve the ſtock on a farm. As what is called prime or firſt-rate ſtock is in but few hands, and the owners generally aſk higher prices than farmers in general can afford to give, it would certainly be a laudable effort if the owners of eſtates, by themſelves or their ſtewards, would procure firſt-rate male animals for the beſt ſtock only

their tenants and neighbourhood, even if so much a-head were paid as would indemnify the expence; or if encouragement could be given by any public measure, by bounties, &c. &c. under the direction of the Board, for keeping the better sorts of each in regular districts, it would be a salutary plan, and might have a tendency to the improvement of live stock; and it is only by some such or similar efforts, that the highest improvement to which live stock is capable of being brought can be accelerated and effected.

SHEEP. The distinct native breeds of sheep of the county of Stafford are as follow:

First, The grey-faced without horns, with fine or cloathing wool. Secondly, The black-faced horned, with fine wool. Thirdly, The white-faced without horns, with long or combing wool. Fourthly, The mixed common or waste land breeds, Fifthly, The pasture sheep of different breeds and crosses.

First, the grey-faced without horns, are the native breed of Cannock Heath, Sutton Coldfield, and the neighbouring commons. The distinguishing characteristics of this breed are, in general, grey faces, lighter or darker, varying from white to black, with all the shades of colour between. The legs of the same colour with the face. The wool fine, closely and compactly covering the carcass, without horns, of a moderate size. Those from a sound part of the walk, and from a managing master, have a good disposition to fatten, and produce mutton at the table equal to that of any breed in the kingdom. The better breed of these sheep very much resemble the breed of the South Down, and are, doubtless, originally from the same common stock; and perhaps the superiority of the South Down to some of the best Cannock Heath and Sutton Coldfield flocks is very questionable, and cannot readily be admitted. The general fault of this breed has been the want of thickness in proportion to their length. Sir Edward Littleton, with a patriotism and public spirit highly

highly commendable, has for ſeveral years back been ſetting the example of improving this breed, by croſſing with Roſs rams; by which the carcaſs has not only been thickened, improved in form, and increaſed in weight, but the wool improved in a very high degree, ſo much that his wool of 1792 was ſold (as I was aſſured by Mr. HALL the ſteward) at twenty-four ſhillings the ſtone of fourteen pound; that of 1793, and of the preſent year, 1794, remaining unſold. They are now, June 9, waſhing the ſheep in preparation for this year's ſhearing, and ſome of the neighbouring flocks are ſheared.

Mr. HALL believes he could ſell the two years wool at twenty-one ſhillings the ſtone, which is eighteen pence per pound, though fourteen per cent leſs than the laſt price. Sir EDWARD's flock conſiſts of ſeveral hundreds of ſheep: the ewes fatten from twelve to ſixteen pound the quarter, and the wethers from ſixteen to twenty pound. Many of Sir EDWARD's tenants have pretty cloſely followed his example, and much improved their flocks by a careful ſelection of rams. The number of ſheep kept on this ſide Cannock Heath is very conſiderable; the common being now in many places perfectly whitened with them. It is to be remarked, that this ſide of the common is amongſt the beſt of the whole walk of twenty-five thouſand acres. The ſoil ſound, and of a pretty good ſtaple the herbage tolerably good in the open ſpaces; and leſs encumbered with heath and rubbiſh than moſt other parts of this waſte. Reſpecting diſpoſition to fatten, there is no reaſon to believe the ſheep here inferior to any other breed; the ewes and lambs are often taken into paſture early in the ſpring, when, if ſound ſheep, every lamb will go to the butcher, and every ſheep follow in the courſe of the ſummer. A few years back I bought a lot of ewes and lambs at Cannock fair, unſhorn, May 8, at nineteen ſhillings per couple, every

lamb

lamb of which was ſold to the butcher before Midſummer at from twelve to fourteen ſhillings; and the ewes might have followed about Michaelmas, but, for the ſake of advance in mutton, were kept in turneps till January following, and ſold at a guinea each, which is a profit not more than common. Theſe ſheep, which, kept in paſtures and croſſed with ſtrong rams, make the paſture ſheep ſtock of many farmers in this county, are very ſtrong ſheep, and are preferred by their owners to the Leiceſter breed; but I think the improved Leiceſter breed much ſuperior, and that they ſhould have the preference from all ſuch farmers as have no common right; but the native breed croſſed, thickened, and improved by degrees, will probably be much ſuperior, and better adapted to the walk than any thing that could be effected by a total change of breed: and that the native breed is capable of being improved, is already demonſtrated by the ſucceſsful attempts here of Sir EDWARD LITTLETON, of ſome of his tenants and neighbours, and on Sutton Coldfield by thoſe of Mr. FOWLER and others. If any gentleman who is a ſtranger to this country ſhould wiſh to have an idea by ocular examination of the ſheep of theſe commons, he ſhould by no means truſt to a chance ride upon the waſtes, where perhaps he may meet only with the breed of the laſt century, the property of ſlovens who never gave themſelves the trouble of a moment's conſideration about improving their flock, but ſhould enquire for ſome reſpectable ſheep-maſter. It is farther to be obſerved, that much the beſt ſheep land on this great common is on the weſt ſide towards Teddeſley, and on the north towards Rudgeley and Beaudeſert, in which the neighbourhood of Hedgford muſt alſo be included large tracts of the ſouth and eaſt parts; being cold, barren and wet, in want of draining, and covered with little but heath, whortleberries, lichens, and moſſes.

The Sutton Coldfield ſheep are doubtleſs from the ſame original

original common ſtock with thoſe of Cannock Heath, but have been puſhed to a larger ſize and weight. Mr. FOWLER of Erdington, who, though in Warwickſhire, is very near the borders of this county, and ſummers ſeveral hundreds on the Coldfield in either county promiſcuouſly, was ſo kind as to ſhew me his own and his neighbours flocks. His rams are ſtout, broad-backed, wide on the rump, and well-made, with fine wool to the very breech: the largeſt of them would, I believe, fatten to more than thirty pounds the quarter, and the ſmalleſt would be conſiderably more than twenty. Great attention has been paid for ſeveral years paſt to improving this breed both in wool and carcaſs, and the principal farmers have endeavoured to excel each other in theſe particulars.

Mr. FOWLER thinks the breed is now puſhed rather too far in bulk and weight for the paſturage of the common, or even of the neighbourhood, unleſs they are driven into better land for fatting. The following particulars he gives me.

" In general the ewes will weigh, when fat, from fourteen to eighteen pound the quarter, and the wethers from fifteen to twenty and ſometimes much more. About two years ſince I had a true Coldfield-bred wether ſheep which weighed thirty-two pound per quarter. About eleven years ſince I turned, as uſual, about the firſt week in May, my ewes and lambs to the common: in Auguſt I took the lambs from the ewes, and kept them in the incloſures about fourteen days; afterwards I turned forty of my wether lambs to the common again, and kept them there winter and ſummer, without ever putting them to any other keep, ſome of which I ſold with other Coldfield ſheep at nine years old for forty-ſeven ſhillings each: their chief ſupport in winter was on heath or ling.

" The average price of wool for the laſt ſeven years, which I have ſold, is thirty-three ſhillings and eightpence per

todd

todd of thirty pounds, and I think the average weight per fleece is three pounds each.

"I think about 11,000 sheep are kept in summer on that part of Sutton Coldfield which is in Staffordshire, and which contains about six thousand five hundred acres. Many more might be kept if the rabbits, now in abundance upon about one thousand five hundred acres of this common, were destroyed. RICHARD FOWLER."

Mr. FOWLER is clearly of opinion, that pushing or increasing the size or bulk of sheep, by improving their pasturage, or removing them to a better pasture, does not at all tend to injure the staple, or degenerate the fineness of cloathing wool, provided due attention be paid to selecting the finest-woolled rams.

I have farther to observe, that Sutton Coldfield is but a barren sheep-walk; containing in some large tracts scarcely any other plant than heath; in other places, fern, gorse, whortleberries, and rushes, with grasses in small proportion.

Secondly, The black-faced horned sheep, with fine wool, are peculiar to the commons on the west of the county towards Drayton in Shropshire, particularly Maer Heath, Ashley Common, and the other wastes in that neighbourhood. They have black and rather long legs; are light in the carcass: the rams are horned, and have been bred, I apprehend, with little attention, and are certainly capable of great improvement, especially in the thickness and form of the carcass. I think them in their present state much inferior to the grey-faced polled last described; their walk, with the herbage thereon, is, however, poor, and ranks with the worst parts of the commons before mentioned.

Thirdly,

Thirdly, The white-faced polled, with long or combing wool, considered as occupying waste or unimproved land, are peculiar to the east parts of the Moorlands. Upon the calcareous or lime-stone bottom they are strong heavy sheep; and I think the most valuable and best sheep on waste land in the county: inferior to the new Leicester, as being much heavier in the bone, and coarser in make; but, by proper crossing with well-made rams, may be improved into an excellent breed of sheep.

Fourthly, The mixed common or waste-land breed consists of the sheep upon the wastes, or upon the uncultivated inclosures, in the west part of the Moorlands, and on the grit or gravel bottom. These are much inferior to those on the lime-stone or calcareous ground, and are indeed of a very different breed. These appear to have originated from the ancient breed of the Moorlands, continued without attention, and have some white, and some grey or dark faces, with legs generally the same colour: some with and some without horns: the wool too coarse to be called cloathing, and too short for combing wool. The walk on this west part is inferior to the other, as being in part composed of peat moors, on which sheep are, doubtless, subject to rot. The breed is nevertheless capable of being much improved by attention in selecting rams, which appears to have been in a great measure neglected.

In the mixed breed, too, may be included the sheep upon the walks and commons in the south of the county; as on Clent hills, the commons near Stourton, Swindon, and Wombourn, Kinver Edge, &c. the sheep on which are a mixed breed, not deserving commendation; apparently bred with little attention; with faces of all colours, white, grey, and black; some with, and some without horns: the wool is tolerably fine, and of the cloathing sort. Some of the rams

 have

have large horns, as heavy as their heads; and even the young lambs often have a ſtrong horn growing with great luxuriance. This propenſity to large heavy horns ought, I think, to be condemned. A heavy horn, doubtleſs, requires nouriſhment from food, as well as the carcaſs, and when full grown is of no value. If ſheep are to be bred with horns, the horns ſhould be fine and ſlender; and rams with ſuch only ſelected. But I muſt confeſs myſelf partial to ſheep without horns: for I conceive a ſheep's horns to be of no ſervice whatſoever, even for defence; and ſo far from ornamental, that the animal appears handſomer without them.

Fifthly, Amongſt the paſture flocks of different breeds and croſſes, in regular flocks, or as ſtock yearly changed, I firſt name the Leiceſterſhire breed; of which there are many regular flocks in different parts of the county. They may be divided into two ſorts; the old and new Leiceſter breeds. The old Leiceſters are well known, as large thick heavy ſheep, with long combing wool: the new Leiceſter breed is a refinement upon the old by croſſing with a finer-boned and finer-wooled ram. Theſe are now eſtabliſhed in various parts of the county, and increaſing in other places. The old Leiceſter breeds are croſſing with the new, which bids fair to produce a very reſpectable breed; there being many inſtances in which the old breed were become too coarſe, and the new too fine. Amongſt the Leiceſter flocks that I have ſeen or examined in this county, I ſhall notice the following, rather in the order in which I have ſeen them, than from any other reaſon. Mr. PRINCEP's flock, which I ſaw in the field, and alſo under the hands of the ſhearer, are of the new Leiceſter breed, and very reſpectable. Some other flocks belonging to LORD BAGOT's tenants, I ſaw and examined, particularly ſome belonging to Mr. HARVEY, his Lordſhip's ſteward. This breed, introduced into this neighbourhood

bourhood a few years back, is gaining ground fast, and is supposed by many, with whom I am disposed to concur, to be the best pasture sheep stock in the kingdom. This superiority consists, or is supposed to consist in this: that the pastures may be stocked much harder with these than with any other stock of equal weight; as they are always fat, even when suckling lambs. Some very good rams of this breed, worth from five to ten guineas, either to purchase or hire, are on LORD BAGOT's estate, and in the neighbourhood, particularly in the hands of Mr. HARVEY and his brother. The ewes full grown will weigh from twenty to twenty-five pounds per quarter. Wethers at two years old, at which age they generally go off, about the same; but when kept another year, they will rise to thirty pounds per quarter. The fleeces weigh from seven to ten pounds: the price of wool for the two last years has fallen from one shilling to eightpence per pound; the present price does not exceed eightpence. I have observed this year, that the lambs from a ram of this breed were lambed much easier than many others, particularly than those from a ram of the old Leicester breed the preceding year. This fact is well known to every one acquainted with my flock: the lambs of 1793 were very generally obliged to be drawn away by force from the ewes. The lambs of 1794 from the same ewes were produced as generally without any assistance: the ewes were in equal condition in 1794 as in 1793. I attribute this chiefly, or wholly, to the form, as the ram is finer in the neck and shoulders than a coarse-made sheep.

These sheep, as well as I can describe them in words, are fine and light in the bone; thick and plump in the carcass; broad across the loin, with the back bone not rising into a ridge, but sinking in a nick, and as it were a double chine of mutton rising on either side; fine and clean in the neck and

 shoulder;

this diſorder; but I cannot find by any well-authenticated account, that any ſpecific for the cure has yet eſtabliſhed its character upon the baſis of experiment. The few opinions which I have received reſpecting the cauſe and cure of the rot are as follow.

The Rev. Mr. WRIGHT tells me, " that the rot is ſuppoſed " to be occaſioned by the wetneſs of the ſeaſon, more than " by the nature of the ſoil on which the ſheep are depaſtured."

Mr. WEBB ſays, that " ſheep are moſt ſubject to rot on " low flat grounds affected by land floods. But poſſibly the " rot may be occaſioned by the licking-up of ſome inſect or " egg that is frequent on low wet lands; yet I have known " ſheep kept upon wet meadows that are ſubject to floods, " without injury."

He knows of no means uſed to prevent the rot in ſheep, except draining the land.

Mr. BRADBURNE's account ſtates, that " common fields " and waſte lands, from the diverſity of ſituation, heavy rains " flowing from the ploughed to the low damp parts that " are not tilled, groſs vapours that exhale from damp " lands, are amongſt the cauſes of the rot. Old ſward, where " the ſurface water remains long on the land, is moſt fatal to " ſheep."

He has been ſucceſsful upon lands ſubject to rot ſheep, by a plentiful uſe of lime, and in laying the land in a form for the rain water to paſs off quick.

Mr. MILLER's opinion is, that " the lands moſt liable to " rot ſheep are wet and low lands, and looſe, where ſheep " pull up the graſs by the roots, and are obliged to eat the " dirt with it. But ſheep rotted in the winter of 1793 up- " on moſt ſorts of lands, owing to conſtant wet, which pro- " duced more worm-caſtings than uſual, and occaſioned the " graſs to be always dirty by over-trampling it."

« The only remedy is underdraining, to make the land « ſound and dry."

Mr. BACHE, who has had much experience on the ſubject, thinks the rot in ſheep is owing to « wet ſeaſons, and « to a putrid or unkindly ſtate of the air and herbage on wet « lands in ſuch ſeaſons. He mentions a ſoft ſpungy graſs « which he conceives has a tendency to produce the rot, and « which graſs I underſtand to be of the *carex* or ſeg-graſs « tribe, and which indeed grows moſtly on wet lands; and ad- « viſes that in wet unkindly ſeaſons ſheep ſhould be removed « to dry lands."

The ſcab is a very troubleſome diſorder, and when got to any conſiderable height requires a good deal of pains and attention to cure. It may be effected by perſeverance in applying decoctions of tobacco, turpentine, ſulphur and verdigreaſe, or by mercurials.

The foot-rot is cured by cauſtics, as quick-lime or butter of antimony, applied to the part affected.

The ſtriking or dying in the blood is a very ſerious complaint, and generally happens to ſheep in a growing or fatting ſtate, often in turnips in winter, or in clover in the ſpring ſeaſon, and is I ſuppoſe of the apoplexy kind. I have heard of no remedy or preventative, and the only precaution uſed here that I know of, is to look them over often, and kill them inſtantly when found ſeized with the complaint. But it often happens that they are dead, and the blood ſtagnant, before they are found; in which caſe the carcaſs is loſt. If any ſheep-maſter is acquainted with a preventative, the communication thereof would be a valuable ſervice to the community. Bleeding has been recommended, but, not having been found effectual, is, I believe, but little practiſed.

HORSES. The draught breed of horſes being thoſe only whoſe uſe is applicable to agriculture, of the others I ſhall

ſay nothing, and of theſe but little, as conceiving there is nothing very remarkable in our breed; though we have a ſufficiency of good ſtout horſes for the uſe both of the carrier and the farmer. The colour is moſt generally black or brown, each being equally eſteemed, and equally uſeful; and indeed, as the old proverb ſays, " a good horſe is never of a " bad colour." Some reſpectable ſtallions are kept of each colour: but in reſpect to the breed of horſes, I think this county muſt yield the palm to the neighbouring ones of Leiceſter and Derby; and indeed breeding horſes is by no means a main object here, and carried little farther than to ſupply the county, and alſo the neighbouring fairs with a few. There are ſome conſiderable ſhows or fairs, where a great number of excellent colts and horſes are offered to ſale, particularly at Stafford and Burton.

Hogs. The breed of hogs moſt eſteemed here, are not the large ſlouch-eared breed, but a croſs between them and a ſmaller dwarf breed. They ſhould be fine in the bone, thick and plump in the carcaſs, with a fine thin hide, and of a moderate ſize; large enough to fat, at from one to two years old, to the weight of from three hundred to four hundred pounds each. Theſe, if well bred, will keep themſelves in good plight with little feeding, and will ſoon grow fat with a plentiful allowance of proper food. Hogs of the large breed have been fatted here to from ſix hundred to eight hundred pounds weight, excluſive of the entrails; but, requiring much time and food, have pretty generally given way to a ſmaller-ſized, finer-boned, thick, plump animal. Hogs are generally fatted here by farmers with the refuſe of the dairy, boiled potatoes and barley meal, and peaſe either whole or ground: by millers with what they call ſharps and gurgeons, that is, with the huſk or bran of wheat ground down, but not wholly diveſted of its flour; alſo with other

ſorts of grain and pulſe ground down : by butchers, with the refuſe or offal of ſlaughtered animals. Bacon and pork are much eaten in this neighbourhood, and the conſumption is very conſiderable, but ſupplied in part from Shropſhire and North Wales.

DUNGHILLS AND COMPOST. Moſt farmers turn over their farm-yard dung, and draw the detached parts of their ſtraw, dung, rick-yard and barn-door rubbiſh, into a heap in the fields near where it may be wanted, that it may heat and ferment to a proper ſtate for laying on the land. Very few alſo but pay attention to mixing together ſoil and town dung; or lime, mud, ditch ſcourings, &c. as compoſts for dreſſing paſture land, or as an addition to the dunghill upon the arable. Town dung and lime are fetched by moſt people who are within reach of thoſe manures. All the ſoot ſwept from chimnies is uſed; " and bone filings from the " bruſhmakers is a very valuable manure." In ſhort, all the manure made in town and country is laid upon the land.

OPEN FIELDS AND INCLOSURES.

THE moſt conſiderable proportion of the cultivated land of this county is incloſed, very little remaining in common fields. I can only recollect the following common fields: 1. Stafford; 2. Stone; 3. Chedleton; and, 4. Bloxwich; the whole amounting to perhaps little more than one thouſand acres. I reckon in all caſes that common-field land is improved at leaſt five ſhillings per acre per annum by incloſure, which will pay a

 good

good intereſt upon the expence of incloſing; alſo that its produce will be conſiderably greater; for common fields are generally both imperfectly cultivated and exhauſted by hard tillage. Incloſures only can effect the improvement of ſtock. Reſpecting population, I have no doubt but the means of employment are increaſed by incloſure, by the planting and reparation of fences. To prove the ſuperiority of incloſures, let us put the caſe of a propoſal made to throw a well-fenced incloſed country into common fields, and I believe every mind would revolt at the idea. The ſize of incloſures is various, and of all dimenſions, from ſmaller to twenty or thirty acres, and ſhould always be proportioned to the ſize of the farm. I believe the ſuperiority of incloſures to common fields is univerſally admitted, and know not of any argument that can be brought to prove the contrary.

WASTE AND UNIMPROVED LANDS.

THE waſte and unimproved lands of this county are very conſiderable, and certainly in the preſent ſtate of population their cultivation and improvement is very much a national object. The moſt extenſive waſtes or uncultivated ſpots in the county are, Needwood Foreſt, Cannock Heath, and Sutton Coldfield; beſides a great number of commons of leſs extent, and ſome conſiderable tracts in the Moorlands and elſewhere, appropriated and incloſed, but not improved.

Needwood Foreſt is a moſt intereſting ſpot. Here near ten thouſand acres of one of the fineſt ſoils of the kingdom lay in a ſtate of nature, wild and romantic! beautiful in the eye of the fox-hunter and the ſportſman. But, conſidering the ſtate of population and conſumption of landed produce, its

its continuance in its present state is certainly indefensible upon any sound principles of general policy. Here the warblers of the wood chaunt forth their mellifluent notes, and the herds of deer range at will over the plain, or through the thicket. The fox and the badger burrow on the declivity of the deep glen, the rabbit on the sandy hill, and the hare hides itself in the thicket. The woodcock, the snipe, the pheasant and the partridge abound in profusion; but all often disturbed by their tyrant master Man. The natural disposition of this extensive forest comprehends a great and beautiful variety of aspect. Gradual eminences and easy vales, and with meandering rills, and now and then a bolder and more abrupt swell, form the general feature of the Forest: a fit subject for any degree of improvement by human art and industry. In the northern part, particularly within Marchington Woodlands, the aspect is bolder. Here the Forest is composed of deep glens, surrounded by abrupt precipices; impracticable to the plough, but happily well cloathed with wood, amongst which the stout native oak, young, luxuriant, and of vigorous growth, is in great abundance. On a level with the summit of these precipices is a broad upland surface, capable of being converted to corn or pasture land of a first-rate quality.

The swells or hills of this Forest are very generally composed of immense beds of red or white marl, the colour sometimes changing suddenly, so that in a small distance they are as distinct as can be conceived. This marl, of a friable mouldering texture, continues from the very surface to many yards in depth. In some of the inclosed land adjoining, particularly Agardley Park farm, it is the same, and both colours have been used promiscuously for marling land, with equal good effect; and very probably the white may contain the greater portion of calcareous earth. The white loamy surface is also equally productive of corn or pasture with the

 red,

red, and equally eſteemed by the farmer. This white marl I had never obſerved before.

This Foreſt is ſtocked with deer, horned cattle, and horſes; but no ſheep are ſuffered to feed on it. The ſuppoſed ſtock may be about three thouſand deer, and three thouſand of all the other kinds in ſummer, but much fewer in winter. The keeping of the three thouſand horſes and horned cattle, charged at twelve ſhillings per head for the ſummering, amounts to eighteen hundred pounds, or about four ſhillings per acre, upon the whole extent of the Foreſt; and this ſum of four ſhillings per acre is all the advantage that a neighbouring very intelligent farmer ſuppoſes the Public derive from this tract; the deer not being managed in any ſyſtem for the public advantage, or for the ſupply of ſubſiſtence and employment for the bulk of mankind. I ſhall add for them to the above account one ſhilling per acre, and five ſhillings per acre as the total value of the Foreſt to the Public in its preſent ſtate. I eſtimate the capital employed in ſtocking the foreſt at five ſhillings per head upon three thouſand in number, or fifteen thouſand pounds. Although theſe, not being conſtantly kept there, cannot wholly be called Foreſt ſtock, yet I will ſuppoſe that which ought to be taken off on this account to be made good by advantages ariſing from the deer. The amount of capital employed in ſtocking the Foreſt will then amount to fifteen thouſand pounds, or about one pound twelve ſhillings and ſixpence per acre, and its value to the Public in its preſent ſtate as land about two thouſand three hundred pounds per annum.

The extent of the Foreſt, by an ancient ſurvey alluded to by the Commiſſioners of Crown Lands in their laſt examination of it, is nine thouſand two hundred and twenty acres: of this, in caſe of incloſure, I will ſuppoſe one thouſand acres ought to be reſerved for woodland. This may be done about

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the glens and impracticable ſpots, and in other places where thriving oaks are the moſt promiſing: there they ought to be fenced off, and reſerved in clumps and coppices, which would be both an ornament to the country, and a nurſery for ſtout oak timber. Two hundred and twenty acres I will ſuppoſe occupied by the lodges, and other ſmall incloſures. This is already in an improved ſtate; eight thouſand acres will then remain for improvement. The moment that theſe ſhall have been incloſed, and buildings for occupation erected on them, they will be worth for a term, as many guineas per annum, and would be improved to a higher value. The amount of capital employed in ſuch improvement in buildings, incloſure, crops, ſtock, &c. might on this rich land be twenty pounds per acre. Deduct the preſent capital, one pound twelve ſhillings and ſixpence per acre, remains increaſe eighteen pounds ſeven ſhillings and ſixpence per acre; which, upon eight thouſand acres, adds one hundred and forty-ſeven thouſand pounds to the national capital. By improving this tract, the increaſed annual product would probably be five pounds per acre, or forty thouſand pounds per annum.

The nature of the ſoil of this tract is in general a red or white marly loam, more or leſs tenacious; but ſeldom approaching to the harſhneſs of clay. Many conſiderable ſpots are light enough for turnips. I eſtimate one thouſand acres in the eight thouſand to be of this quality: this, in caſe of a diviſion or incloſure, ſhould be thrown into allotments, and divided in equal proportion, of ſo much to every hundred acres, and laid with the ſtrong land, which would enable every occupier to provide himſelf with a portion of turnips, for winter food for his ſheep; in compariſon of which convenience, a trifling inconvenience in point of diſtance would be no object. The land would afterwards be ſown with barley.

In every inclosure the rills and vales should also be particularly attended to, and the boundary of such vales traced out by a spirit-level, stretching in breadth as they proceed downwards; and the ditches separating them from the upland being upon a level, should be constructed to answer the purpose of floating gutters for irrigation; and where large quantities of flood water usually pass off, reservoirs should be constructed to collect and retain such water for irrigation at pleasure, by which means large tracts of the sloping sides of vales may be converted into water meadows: the quantity of such upon this forest is not very considerable, the vales being generally narrow, and the slopes abrupt; it is, however, sufficient to be an object deserving particular attention.

This Forest, in an improved state, might be rendered one of the most delightful spots in the kingdom, its form and aspect comprehending such a great and beautiful variety; and the staple of its soil being equal to the production of the fullest crops of the most valuable grain, or to the fatting of stock of a first-rate quality. The sportsman could have little reason to complain if his liberal allowance of a thousand acres, as here proposed, should be suffered to remain in woodland, and this in the wildest and most romantic part, where the natural aspect tends to the protection of the favourite objects of his amusement.

The principal natural vegetable productions that I had an opportunity of noticing, as in some degree rather peculiar to the Forest, are the following:

1. The stout native oak (*quercus robur*); in considerable quantity, and promising and good in quality. An oak called Swilker Lawn Oak, on this Forest, contains at least a thousand feet of timber: it is of great antiquity, but still fruitful in acorns.

2. Holly (*ilex aquifolium*); in great abundance, has been nurſed up and encouraged in growth, I ſuppoſe, as winter provender for the deer.

A very ſmall proportion of the other ſpecies of wood, though the Foreſt is not without ſome of the common underwoods.

Graſſes.—3. Vernal graſs (*anthoxanthum odoratum*); very common all over the Foreſt.

4. Annual meadow-graſs (*poa annua*); chiefly near road-ſides: none of the other finer graſſes being yet in the ear (it being only May 21), they could not with certainty be diſcriminated.

5. Seg-graſſes (*carex's*); ſeveral ſorts in moiſt ſpots, and indeed all over the Foreſt, would be weakened and give way to better herbage, when any attention ſhall have been paid to diſcharge the ſtagnant water.

6. Louſe-wort, or red rattle (*pedicularis ſylvatica*); a bad paſture plant, but encouraged or weakened by the ſame cauſes with the laſt: I obſerved ſome with white flowers.

7. Gorſe (*ulex Europæus*); in patches all over the Foreſt.

8. Petty whin, or hen gorſe (*geniſta Anglica*); in various places.

9. Common fern (*pteris aquilina*); on dry banks.

10. Branched polypody (*polypodium dryopteris*); common on the Foreſt.

11. Wood ſpurge (*euphorbium amygdaloides*); very common on moſt parts of the foreſt, has a ſingular appearance: I have ſeen this plant no where elſe wild in Staffordſhire.

12. Hound's tongue (*cynogloſſum officinale*); very common; has rather a beautiful flower; worthy a place in ſhrubberies or flower borders.

13. Spurge

13. Spurge laurel (*daphne laureola*); common, and some specimens of it variegated.

14. Spurge olive (*daphne mezereum*); less common than the last.

15. Bilberry (*vaccinium myrtillus*); in moist places.

16. Ramsons (*allium ursinum*); near Marchington Woodlands.

17. Woodroffe (*asperula odorata*); growing intermixed with the last.

18. Black briony, or lady's seal (*tamus communis*).

The above are the most common, singular, or peculiar in some measure to the Forest, besides many others in common with other places.

Cannock Heath is the most extensive waste in the county, but its extent cannot easily be determined with accuracy; I estimate it at about forty square miles, or upwards of twenty-five thousand acres. Large tracts of land on the north and west parts of this waste consist of a good light soil, adapted to the turnip and barley culture: the east and south parts are a colder gravelly soil, in many places covered with heath to a large extent; yet I have no doubt but the whole may be brought into cultivation; and that some of our inclosed land now under cultivation is not at all of a superior quality to this waste.

Sutton Coldfield is also a very extensive waste, of no other use but as a sheep-walk or rabbit-warren: that part of it in Staffordshire contains, according to an estimate by a very intelligent resident near the spot, about six thousand five hundred acres; and he supposes the additional waste land between Lichfield and Birmingham, including Bromwich-Heath, Aldridge-Common, Walsall-Wood, Whittington-Heath, and Weeford-Hills, will raise the amount of Sutton

Coldfield

Coldfield to ten thousand acres: their value in their present state amounts, by his information, to three shillings and sixpence per acre; and if inclosed would rise to ten shillings and sixpence per acre for the first twenty-one years, and afterwards be greater. The other principal wastes in the county are those of Swindon, Wombourn, and near Stewponey, in the south; Morredge, Wetley-Moor, Stanton-Moor, Hollington-Heath, Caverswall-Common, in the north. In other parts of the county we find Calf-Heath, Essington-Wood, Snead-Common, Wyrley and Pelsall Commons; Tirley, Ashley, and Maer Heaths; Swinnerton, Tittensor, and Shelton Heaths; Houlton, Milwich, Hardwick, and Fradswell Commons, and many others; and upon a retrospect of the whole, I cannot put our practicable waste lands, or such as are capable of being brought into cultivation, at less than one hundred thousand acres. Their present value as sheep-walks amounts to three shillings per acre per annum: their value inclosed, and after one round of cultivation (tithe-free) will amount to fifteen shillings per acre, and improve by inclosure and cultivation, twelve shillings per acre, or sixty thousand pounds per annum. The present capital or value of stock belonging to such land may be estimated at ten shillings per acre, or fifty thousand pounds; the capital of the land, when inclosed and cultivated, including buildings, fences, crops, live stock, implements, and furniture, would amount to fifteen pounds per acre, or one million five hundred thousand pounds. The addition to the national capital, by such general inclosure and improvement in this county, would amount to one million four hundred and fifty thousand pounds. This land also would make many farms, which, with a due proportion of labourers' tenements, would employ a population of twenty thousand persons, children and families included, in cultivation and other occupa-

tions connected and dependent thereupon; would furnish food for double that number, and would maintain alſo at leaſt double the preſent number of ſheep; if ſheep ſtock ſhould become the chief object, independent of other ſtock, which at preſent draw no nouriſhment or ſubſiſtence from this tract. Thoſe farms alſo would produce a proportion of corn: the wool alſo of the ſheep might be increaſed in weight and improved in quality by a due attention to rams and breeding ſtock. A general incloſure and improvement by cultivation of all the waſtes of the kingdom would, by greatly increaſing the national capital, have a proportionable effect upon the revenue; and it is aſtoniſhing that the colonization of diſtant countries ſhould have been ſo much encouraged, while the cultivation of our own country remains ſo far from being finiſhed or perfected.

In all incloſures the impracticable ſpots, thoſe too uneven for the plough, ſhould be reſerved for other uſes, for plantations where the ſoil is at all adapted for that purpoſe, or for rabbit warren upon ſandy bottoms: I have often obſerved plantations ſucceed extremely well on the ſides of precipices.

Paring and burning has been but little practiſed in this county, and opinions vary much as to its propriety. I have often obſerved it practiſed in other counties, but other means are uſed here even for reclaiming waſte lands. Many people have an idea that it is injurious to thin ſoils; and perhaps deep ſoils can beſt bear the operation. Burning of couch graſs is practiſed by ſome; but moſt people think even *that* is better deſtroyed by tillage and ſunſhine upon the land, if the ſeaſon will admit it.

ARABLE

ARABLE LAND, CROPPING, AND CULTIVATION.

THE arable ſoils of this county, conſidered as referring to cultivation, may be divided into, firſt, the ſtiff or ſtrong clay, marl, or loam; ſecondly, the looſe or light gravel or ſand; thirdly, the mixed or compound ſoil or loam, compoſed of various textures and matter in different places, inclining to ſand, gravel, or clay; in which may alſo be included the thin black ſoils and the calcareous ſoils, or thoſe on a lime-ſtone bottom.

The grain, pulſe, roots, and other vegetables cultivated in field culture upon the arable lands of this county, are chiefly the following:

1. Wheat. 2. Rye. 3. Barley. 4. Oats. 5. Beans. 6. Peaſe. 7. Vetches. 8. Buckwheat. 9. Hemp. 10. Flax. 11. Turneps. 12. Potatoes. 13. Cabbages. 14. Rape. To theſe may be added clovers, trefoils, and one or two of the graſſes. Turnep cabbage has been tried, as well as ſainfoin, lucern, and burnet. Carrots and other garden plants are not introduced into field cultivation, except by gardeners for the markets.

Reſpecting a ſyſtem of cropping and round of crops, no general one can be laid down that will apply in all caſes; various accidents and circumſtances will render deviations neceſſary and proper, and the induſtry and ſkill of the attentive farmer will riſe ſuperior to ſyſtematic rules; yet as every regular buſineſs to be well managed, muſt be conducted by ſomething like ſyſtem, the following courſes of crops are given as the general practice of this county.

The ſtiff or ſtrong ſoils are of two ſorts; the ſtrong and harſh inclining to clay, and the more mild or friable marl

or loam. These soils are generally on a marl bottom, often afterwards rock. On the strong harsh land seldom any other grain than wheat and oats are grown, and in the rotation of; first, fallow; secondly, wheat; thirdly, oats; when the land is laid down with clovers, trefoil, and ray-grass, for one two or more years. Sometimes on breaking up an older turf, the course is, first, oats; secondly, fallow; thirdly, wheat; fourthly, oats; with seeds as before. On the more mild and friable loamy soils, the course of cropping is, first, fallow; secondly, wheat; thirdly, beans or pease; fourthly, barley or oats; when the land is laid to grass as before. In laying land down to grass for more than one year, the white clover and trefoil are often sown. On this sort of soil "beans are sown in the beginning, and oats at the latter end of March: Barley seldom sooner than May;" although I think barley should always be finished sowing in April. Wheat is principally sown in October, but some little both sooner and later. A vein of incomparable marl is found near Stafford castle, and in the neighbourhood of Eccleshall, which in some places rises to the surface of the earth, and the farmers plough into it. The Rev. Mr. DICKINSON informs me, that the farmers fallow here for wheat, and get good crops without manure. They reserve the dung for the wheat stubble, and put it on in autumn for the benefit of the Lent tillage. This method secured afterwards a crop of beans and another of barley, which, when the dung was laid on the wheat fallow, were often unproductive. This appears a capital improvement, and of extensive application. Marl has been formerly, and is still much used on these soils. As it abounds in the under-stratum it should be laid on sparingly; otherwise it gives a harshness to soils perhaps too strong before. Lime is an excellent corrector of such harshness: it has the power of ameliorating such soil, and in some mea-

ſure of breaking and diſſolving its particles. It is much uſed, and with good effect, eſpecially after marling.

I have been informed that the following tillage for barley on theſe ſoils has been attended with ſucceſs, though not practiſed to any great extent. After ſummer fallowing for wheat, and harveſting the wheat crop, thoſe who practiſe it plough up in the November following the wheat ſtubbles in a proper form for ſowing, lay them dry by proper furrows or gutters, and ſow barley the April following without farther ploughing, as the amelioration of winter froſts diſpoſes the land to work kindly under the harrows without more tillage. To give this a fair chance of ſucceeding, the ſummer fallowing ſhould be managed in a complete ſtyle. This ſtrong ſoil will form good paſtures, as can be proved by here and there a piece of old turf, which is an excellent paſture; but the occupiers ſay it requires many years to turf. My neighbour Mr. MILLER, complains of this land being too much ploughed, obſerving that "it is worked with the plough till it is tempered enough to make bricks, and then the occupiers complain it will not graze." Perhaps a larger proportion of turf, by enabling the occupier to maintain more ſtock, and conſequently produce more manure, might be a means of producing an equal or ſuperior quantity of grain from a leſs breadth of acres. Mr. MILLER thinks the quantity of turf land on theſe ſtrong ſoils ſhould be increaſed, by laying a few more pieces to graſs, in proportion to the ſize of the farm, one piece in a year, clean and in good heart, with perennial red and white clover, trefoil, burnet, and graſſes, and afterwards mucking on the turf.

Secondly, The light ſandy or gravelly ſoils adapted to turneps. On this ſort of land the Norfolk ſyſtem of, firſt, turneps; ſecondly, barley; thirdly, clover; fourthly, wheat; has been long well-known and practiſed. The principal

time

time of ſowing turnips is from New to Old Midſummer, but ſome are ſown both earlier and later: the land in preparation for turnips has generally four ploughings, and ſufficient harrowings between. The firſt ploughing ſhould be before Chriſtmas, the ſecond in March and well harrowed down, the third in May, and the fourth at ſowing. The manure uſed here for turnips is dung or lime, or both, or a compoſt of dung and ſoil. Near large towns, the dung of ſuch towns is often uſed; and near Birmingham in particular, I am well informed, the parings and ſhavings of bone and hoof duſt is applied with great ſucceſs. Turnips are in general hoed, and ſometimes a ſecond time, and weeded by hand; but it has not always been eaſy to procure hands for the whole of this buſineſs at a reaſonable price. It may perhaps be worthy of remark, that the turnips of the laſt year, 1793, in this country, were produced of the largeſt ſize ever known; commonly of the weight of from twenty-five to thirty pounds each; occaſioned undoubtedly by an uncommonly luxuriant Michaelmas Spring, and a mild open Autumn and Winter. The turnips are parted with hurdles, and generally eat on the ground by ſheep and calves, and it is common to draw a quantity of the largeſt for ſtall feeding. Some farmers having obſerved that this ſyſtem of the ſame crop every four years is hard tillage, and tires the ground, have given their fields two years reſt under the ſeeds; which makes the courſe, firſt, turnips; ſecondly, barley; thirdly, clover; fourthly, paſture; and, fifthly, wheat. The wheat often ſucceeds well upon a two-year lay, though I think not ſo kindly as immediately upon the clover. Some farmers, however, think they can obſerve no deficiency of crop on that account: ſome have totally omitted the growth of wheat on light land. Their courſe is, firſt, turnips; ſecondly, barley and ſeeds, paſtured for two or more years; and then ſometimes oats, on breaking up the turf: or, firſt,

turnips,

turnips; ſecondly, peaſe; thirdly, barley and ſeeds, as before. As in theſe courſes the great ſtaple, wheat, is neglected, I cannot beſtow on them any commendation, but ſhould prefer, firſt, turnips; ſecondly, barley with ſeeds; thirdly and fourthly, paſture two or more years; fifthly, peaſe; ſixthly, wheat. This is ſometimes practiſed, but is moſt applicable to land not too light or ſandy, but poſſeſſing ſome ſtaple of loam. The following courſe alſo is not uncommon, nor a bad one, upon land that is continued ſome years in paſture: firſt, oats; ſecondly, wheat; thirdly, turnips; fourthly, barley with ſeeds, paſtured for ſome years. It muſt be remarked, that whenever light land is ſeeded down with an intention of remaining ſome years in paſture, four pounds of white clover and four pounds of trefoil per acre, beſides graſs ſeeds, ſhould be ſown with the red clover.

Thirdly, mixed ſoils, compounded of, or inclining to ſand, gravel, or clay; the bottom various, ſand, gravel, clay, marl, or rock; including the thin black ſoils, and the calcareous ſoils, or thoſe on lime-ſtone.

The mixed ſoils on a gravel or clay bottom are very ſubject to be ſpringy. The water being pent in by beds of clay, is very apt to break out upon the ſurface through the gravelly ſtratums, and in wet ſeaſons to ſtarve and deſtroy whatever crop may be upon the ground; and this defect is extremely common upon moſt ſoils compoſed of a mixture of ſand or gravel; or clay, and the intercepting of ſuch ſprings, and conveying away their water by hollow drains, is a very extenſive and important part of agricultural improvement, equal in theſe reſpects to the draining of fenny land, at leaſt in this county: and to the credit of the preſent occupiers be it recorded, that great exertions have been of late years made, and are ſtill making in this ſpecies of improvement.

Fallowing

Fallowing for wheat is practiſed on cold wet or ſtrong lands by the beſt farmers, and is doubtleſs abſolutely neceſſary on all lands improper for turnips, (which all lands are, that are not ſufficiently dry to eat them on the ground by ſtock, for in ſuch lands the poaching and treading in carrying of the turnips will do much more injury to the land than the turnips are worth); and he who ſhall attempt to manage ſuch land without fallowing, will have occaſion to repent his miſtake. The Writer of this acknowledges himſelf to have been once a ſufferer by too implicit a confidence in the oppoſite theory. Fallowing is neceſſary, becauſe the roots of the perennial graſſes, ſuch as couch graſs, vulgarly here called ſquitch, cannot be ſufficiently weakened or extirpated without repeated ſummer ploughings; and without ſuch extirpation it is in vain to ſow wheat or other grain, becauſe ſuch grain will be much injured, and in ſome ſeaſons, particularly in a wet one, be choaked by the increaſe of ſuch graſſes. The graſs roots, called here ſquitch, are not of any one individual particular graſs, but of ſeveral of the perennial graſſes. What is called the black ſquitch, ſo troubleſome in dry arable land, is an *agroſtis* or bent graſs, uſually referred to the *agroſtis capillaris*: but Mr. Curtis aſſured me in London, this ſpring, that this graſs is not the *capillaris*, and that in his next arrangement of the graſſes he ſhall call this ſquitch graſs the *agroſtis repens*. The creeping red-ſtalked bent graſs (*agroſtis ſtolonifera*) is the worſt ſquitch graſs on ſtrong wet lands. The dog's graſs (*triticum repens*) is the ſquitch graſs of gardens. The tall oat graſs or bulbous-rooted ſquitch graſs is very troubleſome, and if ſuffered alive in the ground in wet ſeaſons, will increaſe prodigiouſly, and choak any crop. The creeping ſoft graſs (*holcus mollis*), and ſeveral others of the perennial graſſes, will interfere with the growth of corn; and as they have all the habit, in ſome degree, of eſtabliſhing themſelves in the ground when it lays in turf, ſummer fallow-

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ing becomes neceſſary for their extirpation previous to ſowing wheat, as this extirpation can be only very partially effected by hoeing, or in any other way than by repeated deep ſummer ploughings, and as the mixed ſoils now in queſtion, which are too moiſt for turnips, have a particular propenſity to the production of theſe graſſes, ſummer fallowing becomes abſolutely neceſſary; and every attempt to crop without it, for any length of time, on ſuch land, has terminated to the injury of the land and the loſs of the occupier.

The uſual culture and courſe of crops on the mixed ſoils of this neighbourhood are, firſt, fallow with four ploughings and manured with dung or lime, or both, or marl and dung, and ſown with wheat. Secondly, The wheat ſtubble pin-fallowed, that is, ploughed in autumn and laid dry, croſs plowed in March and harrowed down, and ploughed up and ſown with barley in April, with clover and other ſeeds, and then laid two or more years in graſs; after which it is again ploughed up, and oats are ſometimes ſown on the turf, which afterwards is fallowed again. The following mode ſeems a rational way of avoiding a total fallow, and is ſometimes practiſed, viz. Firſt, Oats on one ploughing of the turf. Secondly, The oat ſtubble dunged, ploughed at Michaelmas and ſown with winter vetches, to be eaten off the ground time enough for a fallow for wheat. Thirdly, Wheat. Fourthly, Barley with ſeeds, and then graſs for two or more years. Some of the courſes of cropping before named for ſtrong and light ſoils, are alſo ſometimes applied to mixed ſoils.

Vetches are often ſown in this county both in autumn, and ſpring; the former certainly by much the moſt commendable. I have this ſeaſon met an inſtance where a pretty good crop has been carted to the ſtable, and the whole piece cleared early enough for ſowing turnips in June. This will ſeldom

 happen

happen here, and is attributed in this inſtance to the mild winter and early ſpring. Vetches would I think be more ſown, but the ſeed is generally dear, and the keep often not worth the ſeed, without running them on the ground ſo long as to interfere with the working of the fallow.

Rye is ſometimes ſown on a wheat ſtubble for early ſpring feed for ſheep, and eaten off early enough to work the ground for turnips. This on ſound early land may give feed enough to pay for the ſeed, as coming in at a time when keep is very valuable. Rye is little grown for a crop in this county, except on headlands or hedge ſides. Rye uſed ſome years back to be much ſown, mixed with wheat, on light land, but has been generally omitted ſince the introduction of the ſyſtem of wheat on clover lays.

Buckwheat (called here French wheat) has been grown both for ploughing under as a manure, and for a crop, but is in no very high repute, and no reſpectable experienced farmers would think of growing it unleſs upon new-incloſed or unimproved land. In the ſyſtem of ploughing it in as a preparation for wheat, it has generally been ſuppoſed to leave the land too light and porous; and for a crop, although the ſeed is a good food for hogs, pigeons, or poultry, it is not in general eſteemed equal to a crop of the uſual grain or pulſe. One of our native plants, nearly allied to this, ſtands recommended by Dr. WITHERING for cultivation; at which I ſuppoſe the practical farmer will laugh, though perhaps without a cauſe. this is the black bindweed, called here bearbind (*polygonum convolvulus*) which the Doctor prefers to buckwheat (*polygonum fagopyrum*). His words are theſe, after deſcribing the bindweed: "The ſeeds are quite as good for uſe as thoſe of the preceding "ſpecies, (referring to buck wheat) are produced in greater "quantity, and the plant bears cold better." The ſeed certainly contains a very fine white flour, and the plant is extremely prolific, but the grain is ſmaller than that of buck-

wheat.

wheat. The farmers here confider it as a troublefome weed, twining round the ftem of beans, wheat, or other grain, and fretting the plant: and the feeds, being of a triangular form, will not readily feparate, in dreffing, from the grain with which it grows; it may probably be equally worthy of cultivation with the buck-wheat, as a food for hogs and poultry.

Hemp and flax are grown in this county, but upon a fmall fcale. Hemp is generally grown in fmall yards, appropriated to that purpofe, near houfes, or in the gardens of cottages, though fometimes an acre or two is grown by a farmer after turnips; and I have known a few inftances of large crops upon a deep black peat, well drained. Flax is generally grown upon a turf on one ploughing. Moft leafes have reftrictions to prevent the cultivation of thefe plants on a large fcale, and the tenants are often limited to an acre; although other farmers with open leafes make no ufe of the privilege, fuppofing thefe plants will pay no better than the ufual grain, which I believe they will not, when grain bears a pretty good price.

Potatoes have been a good deal cultivated in various ways, and applied to the fatting of cattle and hogs: but the better forts will not pay for thofe purpofes, unlefs in very plentiful years, when they are cheap at market. The refufe potatoes are very generally applied to fatting hogs, which they will bring on faft when boiled and mixed with a little ground barley, and the inferior barley called tail-end; and even damaged barley will do for this purpofe. The markets are principally fupplied with potatoes by cottagers who have large gardens, or who rent land for the purpofe of growing them: fome alfo are grown by the fmaller farmers. At Smethwick, near Birmingham, I obferved upon a mixed foil fome fields of potatoes in rows of a width to be plough-hoed;

they were managed in a good ſtyle, the land well worked and clean. They have been grown here in various ways; cultivated both with the plough and ſpade; and the culture well underſtood, as well as their application to fatting cattle; the quantity applied to which is regulated by the price of the market.

The cultivation of Cabbages in the field has been introduced into this county for ſome years, and practiſed in moſt parts of it upon a ſmall ſcale; many of my neighbours growing them regularly, as I have ſeveral times myſelf. This ſpring I obſerved, May 20, two fields of cabbages already planted between Croxall and Burton upon Trent. Alſo May 27, Mr. HARVEY of Dunſtall, who has been long a planter of cabbages, had ſome breadth-planted with autumnal plants, and intended finiſhing the field with ſpring plants. This is the true ſyſtem, as the former will be large enough for early uſe; and the latter will ſtand the winter for uſe in ſpring. He plants the Drumhead, and procures the ſeed from Scotland: I obſerved alſo cabbages planted near Okeover, and the ground well prepared: their culture and uſe are underſtood in moſt parts of the county. They are principally given either to ſheep, in which caſe they are carted to a turf; or to milking cows, whoſe milk they much increaſe without tainting the butter. Sometimes alſo they are given to feeding cattle, as they can be come at in froſt and ſnow, when turnips are buried, or locked in the ground. My neighbours, Mr. CORSER, Buſhbury, and Mr. MILLER, Dunſtall, have this ſeaſon, 1794, each of them a good portion of a turnip-field prepared for cabbages; Mr. MILLER's being now, June 25, in part planted, the others waiting for rain. They choſe to plant them on three feet ridges, manured under the rows with ſoil left between the rows for one plough-hoeing: the hoeing is afterwards finiſhed by hand: ſome people plant them without

out ridging, ſpread the manure promiſcuouſly, and do all the hoeing by hand. Their uſe for milking-cows is rendered of leſs conſequence, by a diſcovery in conſequence of which turnips may be given to ſuch cows without tainting the milk, or its produce. A ſmall quantity of clear water, in which nitre has been diſſolved, added to the milk freſh from the cow, will take away every ill-flavour from the butter, though ſuch cow may have been fed ever ſo plentifully with turnips. I am ſince informed by my neighbour Mr. MILLER of Dunſtall, that they have been equally ſucceſsful in curing the taint from turnips, by putting a lump of nitre in the veſſel that holds the cream; and the cultivation of turnips being more ſimple, attended with leſs labour, and probably more kindly for the ground, they will on theſe accounts have the preference. Some farmers think cabbages are beſt grown on the ſame ſpot or flat of ground every year, which ſhould be allotted and incloſed for that purpoſe: others grow them in the turnip-field; and they are followed by barley, as it is generally convenient to reſerve them for uſe late in the ſpring: and as they are often grown on the ſtrongeſt ſoil of the field, the land drying and becoming cloddy, gives more trouble in making it fine for the barley crop, and may occaſion the idea of their leaving the land leſs kindly than turnips, although this may be owing to other circumſtances.

Turnip-cabbage has been cultivated by ſeveral perſons; but the uncouth form of the roots, and the difficulty of clearing them from the ground, has occaſioned them to be neglected; although they are extremely hardy, and might be of ſome uſe in the interval of time between turnips and graſs.

Rape (*braſſica napus*). This plant I have never known cultivated in this county for its ſeed, and many leaſes contain reſtrictions to prevent it; but it is ſometimes ſown on an early ſtubble for ſpring feed for ſheep, upon land intended to be

ſown.

ſown with turnips the enſuing ſummer: the ſmooth charlock is this plant in its wild ſtate.

To the courſes of cropping before ſtated, I ſhall juſt add that of the Moorlands, which is the worſt part of their management, deſtructive to the land, and certainly ignorant in the extreme. This courſe is generally, firſt, oats upon one ploughing of the turf; ſecondly, oats upon one ploughing of the ſtubble; and thirdly, oats after a winter fallow, with clover and graſs ſeeds; but the clover and ſeeds ſometimes omitted, and nature truſted to alone to form the turf. They have an idea that the land will not produce wheat, or not ripen it in time, and but ſeldom attempt it; but when they do, it is after fallow. They ſay it will grow a year from the ſowing. I have no doubt but its time of ripening would be much facilitated by introducing quickſet fences to ſhelter the country in winter, which is in general very high ground, very much expoſed to winter blaſts, and ſheltered only by low ſtone walls. With quickſet fencing and early ſowing, I have no doubt but any quantity of wheat required might be produced; but the country not being populous, and oatbread in general uſe, the demand for wheat is not very great: its cultivation, however, as I underſtand, is increaſing.

BROAD-CAST, SEED, AND PRODUCE.

THE major part or bulk of the ſowing buſineſs is done in the old broad-caſt way, though drilling is introduced, and has made ſome progreſs. The general allowance of ſeed to an acre in this way, is, of wheat, two buſhels or a little more: of barley, three buſhels; of oats, four to five buſhels; of peaſe, three buſhels; and of beans, I believe, four buſhels;

the bushel of this county being nine gallons and a half. The returns or product vary, but to be deemed a good fair crop, should be, of wheat, twenty-five bushels per acre; of barley, thirty; of oats, thirty to forty; of pease and beans, various. Much greater quantities than the above have been obtained in particular cases, and a bad crop full as often gives less. The largest well-authenticated produce of barley that I know of was raised a few years since upon Oxley farm, near Wolverhampton, where from twenty statute acres of land, sown broad-cast, Mr. HUSKISSON carried to market, twenty loads of thrashed barley, each load sixty bushels, and each bushel nine gallons and a half, besides the tail-end kept for his own use which could not be less than three such bushels from every load; making sixty-three bushels per acre of nine gallons and a half to the bushel; or near seventy-five Winchester bushels per acre. This statement can be proved as a fact by the most unquestionable evidence. Wheat has sometimes produced forty, and oats sixty such bushels per acre.

DRILL HUSBANDRY. The drill husbandry, as stated before, is fairly introduced, and has made some progress. I believe I could name a dozen farmers who have drill machines, one half of which are within a few miles of Pendeford. The machines used here do their work pretty well. There are two varieties of them; one invented by COOK, or an imitation of his invention; the other made under a patent granted to a person in Yorkshire, and sold here by Mr. JOSEPH CORNFORTH, machine-maker, at five guineas each. The delivery of grain in this is effected by hollows, or cavities, cut in a cylinder; that of COOK's, by ladles fixed in a cylinder. They either of them deliver several rows at a time, and may be constructed to deliver the rows at any given distance, they have been used for all sorts of grain, but not generally; sometimes

ſometimes rainy weather obliging the owner to do part of his buſineſs broad-caſt. The following account of drilling I have from gentlemen who have been in the habit of practiſing that method of ſowing.

The Rev. Mr. DICKENSON, Rector of Blymhill, ſays, " I " have juſt introduced what ſeems to me a conſiderable im- " provement of Mr. COCK's drilling machine: it ſets the " drills at the diſtance of ſeven inches; an interval which in " the culture of wheat and barley is far preferable to nine. " Mr. SHENSTONE of Standyford has, I believe, the merit " of having planned the alteration, and gets the machines " fitted up: the price of one is about ten guineas, includ- " ing an allowance to Mr. COOK as Patentee. It will drill " wheat upon the clover lay, and I do not entertain a doubt " of its ſuperiority to broad-caſt ſowing, in light ſoils." I ſhall juſt add, that I have had the pleaſure of ſeeing two pieces of Mr. DICKENSON's drilled barley, but do not think it ſuperior to what might have been expected from broad-caſt ſowing.

I have received the following account from Mr. HIGGS, Cronkhall, near Wolverhampton.

" I have been in the practice of drilling grain by a ma- " chine for the laſt five years. I began with two acres of " barley upon a wheat ſtubble of the preceding year, in " 1790. A wet ſpring ſucceeding filled my ground with " weeds; but by heeing in June following, I had rather a " better crop than broad-caſt, in the ſame field; which gave " me hopes that if ever I ſhould underſtand properly the " drill mode, it might anſwer my end. About the Michael- " mas following, I ſowed ſix acres of wheat with the drill, " and in the ſpring of 1791, two acres of peaſe and two " acres of oats on a clover lay; as alſo five acres of barley " after wheat ſtubble: the wheat was part on barley and

" part on peafe ftubble. The wheat crop after barley was
" very indifferent, but that after peafe, though in the fame
" field, very great, being thirty-eight ftrikes per acre, at
" thirty-eight quarts to the ftrike, which is equal to upwards
" of forty-five ftrikes Winchefter. The oats were very
" indifferent, but the peafe produced a great crop; fifty
" ftrikes of our meafure per acre. The barley alfo amount-
" ed to fifty ftrikes of my meafure per acre. I have ftill
" purfued the drill mode in preference to broad-caft, where
" I can have an opportunity of hoeing; or where the ground
" has been made very fine by fpring ploughing, even if I
" cannot hoe, as when I fow my fpring grafs feeds: but the
" greateft improvement I have made by drilling has been
" on an old lay turf, particularly in one inftance of ten
" acres. I ploughed the ground in October 1792, and drill-
" ed it with wheat: it was ploughed with a flay-plough *,
" and no manure was ufed. In the April following it was
" hoed with a hand-hoe, for which I paid three fhillings per acre,
" and beer. The field produced two hundred and ninety ftrikes,
" of thirty-eight quarts to the ftrike. I am now making a
" turnip fallow of the fame field: it is a deep mixed foil,
" rather inclining to a light foil. The ground which I
" recommend for drilling, is a good deep foil, rather light,
" and free from very long roots; but the cleaner the foil
" fhall be, as in all other hufbandry, the better will it be
" for the crop. Before I fow my wheat, I fteep it one night
" in a brine of falt and water, mixed up until it will bear an
" egg new laid, which, I think, preferves my wheat from
" the fmut. If afterwards ufed for drilling, it fhould be
" fpread on a floor to be dried before it is ufed, to prevent it

* See IMPLEMENTS of HUSBANDRY.

" from ſticking together, and ſhould not be dried with lime,
" as in the common broad-caſt way.

" There are four farmers within one mile of me, that uſe
" the drill machine; and all their drilled crops now growing
" look better and much preferable to their broad-caſt: but
" ſpeaking for myſelf, I give the preference to drilling, which
" will be ſeen by the following account of my crops, now
" growing as under, and in which the drilled look far better
" than the broad-caſt. In ſhort, the drill has far exceeded
" the broad-caſt each year I have uſed it, beſides leaving my
" land, where I can hoe it, cleaner from weeds.

CROPS OF THE PRESENT YEAR 1794.

	Drilled Acres	Broad-caſt. Acres
Wheat	18	7
Barley	17	1
Peaſe	9	—
Oats	—	3
Total	44	11

Total 55 Acres"

I ſhall juſt obſerve, that Mr. HIGGS's arable land is generally a good deep light loam; and that other farmers who have tried the drill machine, generally ſpeak in favour of the practice.

Reſpecting the advantages of drilling, and its ſuperiority to broad-caſt ſowing, the following advantages are obvious: 1. The vacant ſpaces between the rows can be much eaſier cleaned by the hoe than between the plants in broad-caſt ſowing; 2. The ſeed is laid in at a more proper and equal depth than by the harrows; and, 3. A ſaving of ſeed may be

effected of, I believe, one-fourth of the whole. In ſome other reſpects, theoretically conſidered, the broad-caſt ſowing ſhould ſeem to have the advantage. For, 1. The young plants promiſcuouſly diſpoſed will have a leſs diſtance to draw their nouriſhment, and will occupy the whole extent beneath the ſurface with leſs effort, and with ſhorter root fibres, than when crouded in rows with open ſpaces between. 2. The broad-caſt ſowing is rather more ſimple and eaſy in operation, and leſs liable to be obſtructed by change of weather or ſhowers. 3. In the caſe of ſowing graſs ſeeds with barley, which is or ſhould be always practiſed, the advantage of hoeing is loſt; and in the ſteeping of wheat for ſowing, the drying with lime is loſt; in which probably a great part of the health of the operation conſiſts; and the drying by ſpreading the ſeed on a floor ſeems tedious, and a work of time. It is further to be obſerved, that for land to be fit for drilling, it ſhould be clean from root-weeds, and in a fine ſtate of culture. I have heard a very ſenſible experienced broad-caſt farmer remark, that when his land is in that ſtate, he can do anything with it, or get a good crop in any way. I have juſt further to remark, that I did ſome years back attempt the drill ſyſtem, with a view of aſcertaining how far foul land, or ſuch as wanted fallowing, could be cleaned by hoeing between the rows, hoping there might be a poſſibility of precluding the neceſſity of ſummer fallowing; but not ſucceeding to my mind in this particular, I declined the practice. I would not wiſh by any means to be underſtood to have the leaſt wiſh to diſcountenance the attempts of others, as I conſider the practice of drilling and hoeing the fields in a good ſtyle as a very neat mode of culture; and he muſt always be eſteemed an improver of the agriculture of his country who ſhall obviate the difficulties at-

tending the drill, and the objections to it, so as to render it of more general utility to the united kingdoms.

Mr. MILLER, Dunstall, is a friend to the drill husbandry, which he practises on a considerable scale. He has some barley this season which promises to be an excellent crop: it is but justice, however, to remark, that the broad-cast in the same field is equally good.

SEED-TIME AND HARVEST. The seed-time in this county commences in March, and should always be finished in April, but sometimes in some places hangs on through a great part of May. The hay harvest is from the middle of June to the end of July. Corn harvest is in August and September; but in some early seasons pease, oats, and barley, have been harvested about the end of July.

STEEPING OF SEED. The steeping or pickling of seed wheat previous to sowing is pretty generally practised here, and its propriety established by the most weighty of all arguments, namely, by the most decisive experimental proofs of its good effect in preventing the smut. Various ways are used. That most generally approved is, to immerse the wheat in a brine of salt and water, or urine, mixed up strong enough to swim a new-laid egg; and then stirring it well up, to skim off whatever swims on the surface; and after taking it out, or letting off the brine, to dry it with quicklime to a state for sowing. In this process the hydrostatical improvement of the seed is evident, by separating from it every seed and grain deficient in specific gravity; and I have never known or heard a well-authenticated instance of its failure in completely preventing the smut; a disease in wheat which whoever is well acquainted with, must think serious indeed. The ingredients here used carry with them the idea of health, and are worth all the expence and labour as manure.

WEEDS.

WEEDS. The weeds to which arable land is ſubject, are a great plague to the plough farmer, and it is chiefly to their predominance that the neceſſity of ſummer fallowing is to be attributed. The following are the principal weeds that the plough land of this county is moſt ſubject to, in which thoſe before enumerated as paſture weeds are omitted.

1. Couch graſs, called here ſquitch, that plague and curſe to arable cultivation. The term ſquitch ſignifies the roots of perennial graſſes; of no one particular, but of ſeveral ſorts; particularly the bent graſſes *(agroſtis's)*, the dog's graſs *(triticum repens)*, creeping ſoft graſs *(holcus mollis)*, tall oat graſs *(avena elatior)*, and ſome others. The roots of theſe are ſometimes ſo interwoven with the ſoil in hard tilled, worn-out land, as to form a perfect mat, and to choak the plough: they abound moſt in light and mixed ſoils, and are only to be deſtroyed by repeated ſummer ploughings, or by forking them out and burning them.

2. Coltsfoot *(tuſſilago farfara)*; very apt to abound in hard tilled land. LORD HAWKE informed me at the Board of Agriculture, "that the only time to deſtroy this weed is by "cutting it up in thoſe months when it begins to throw its "flower; at which time if ſo cut, it will bleed to death." Theſe months are February or March. Neglected at this time, it will ſoon after ripen its ſeed, which, furniſhed by nature with feathers or wings, flies all over the country, and therefore eſtabliſhes itſelf very quickly on banks of earth newly thrown up. This weed may be conſiderably weakened by repeated ſummer ploughings, and may then, for the greateſt part, be weeded out, as the ground is thus rendered light.

3. Common or way thiſtle, curſed thiſtle, or ſow wort *(ſerratula arvenſis)*, growing everywhere, may be weakened by good tillage and weeding, but not totally deſtroyed. This weed ſeems almoſt naturally produced by the ſoil, in conſe-

consequence of the curse, "thorns also and thistles shall it "bring forth unto thee;" yet doubtless, strictly speaking, produced only from its numerous fibrous roots, which are strictly perennial, and from its more numerous seeds, which are feathered, and can fly to any distance with the wind. This plant can only be eradicated by universal agreement to cut it up before it shall seed.

4. Charlock, or chadlock. The yellow-flowered weed termed chadlock by the farmer, is not one individual, but three separate and distinct plants, each species more or less abounding in different places. They are as follow: 1. The rough-leaved chadlock, or wild mustard (*sinapis nigra*); 2. The smooth-leaved or wild rape (*brassica napus*); and 3. The rough-leaved wild radish, with whiter flowers (*raphanus raphanistrum*). These plants are all annuals, produced entirely from seeds, which they bear in great abundance, and which seeds will lie in a clod as safe as in a granary, and vegetate at the end of twenty years, when ploughed up and exposed to moisture. These intruders are only to be extirpated by ploughing them under when the field is fallow, or by weeding them out of the crop before their seed shall have been ripened; for if suffered to perfect and shed their seed, each single plant will produce an hundred; the farmer should therefore carefully prevent this by weeding or hoeing them out in time.

"One year's seeding makes seven years weeding," is an apophthegm which should be strongly imprinted in the farmer's memory. The increase of the above and some other of our field weeds when they are permitted to shed their seed, is beyond all calculation.

5. Ivy-leaved speedwell (*veronica hederifolia*), sometimes very much abounding amongst wheat very early in the spring, but seeding and leaving the ground early, and perhaps not much

much injuring the crop, would probably be best destroyed by working and pulverizing the fallows very early in the season, which would occasion the seeds to vegetate, and the plant would be destroyed by ploughing it under without giving it time to perfect its seeds.

6. White darnel *(lolium temulentum)* is produced from seed sown from wheat, to prevent which great care should be taken. This weed is extremely prolific, and very injurious to a wheat crop when growing, and to its value at market: it is an annual plant, which may be avoided by attention in the choice of seed.

7. Goosegrass, catchweed, or cleavers, called here Eriff *(galium aparine)*. I have known this plant very troublesome in a wheat crop, twining and crawling up the straw or stem, but is not very common in well-managed land.

8. Bindweed *(convolvulus arvensis)*; a troublesome parasitical weed, but not so abundant here as I have seen it in some of the chalk counties.

9. Shepherd's needle, here beggar's needle *(scandix pecten Veneris)*; sometimes very abundant in hard tilled land, and its seed not easily separated from corn in dressing or winnowing.

10. Common chickweed *(alsine media)* abounds most in land rendered fine by repeated ploughings.

11. Pale arsmart or lakeweed *(polygonum pensylvanicum)* abounds most in wet seasons, on moist land.

12. Black bindweed, or bearbind *(polygonum convolvulus)*. This is also a parasitical plant, twining round any thing it can lay hold of. Dr. WITHERING recommends it for cultivation, preferring it to buckwheat, to which it is nearly allied.

13. Bladder campion *(cucubulus behen)*; often growing amongst barley on light land.

14. Cockle

14. Cockle (*agroſtemma githago*). Care ſhould be tak not to ſow this weed, it being very injurious.

15. Corn poppy (*papaver rhoeas*); ſometimes very abu dant on light land in dry ſeaſons, and a pretty ſure indic tion of a light crop.

16. Corn crowfoot (*ranunculus arvenſis*). I have ſeen t plant ſo abundant, as to be very injurious to a wheat cr on ſtrong moiſt land.

17. Dead nettle (*lamium purpureum*); abounding ſon times and on ſome lands in wet ſeaſons.

18. Bugle (*ajuga reptans*); common in wet ſeaſons.

19. Shepherd's purſe (*thlaſpi-burſa-paſtoris*), well kno ſometimes as a troubleſome weed.

20. Fumitory (*fumaria officinalis*); abounding ſometir on land in fine tillage, but not very pernicious.

21. Tare (*ervum tetraſpermum*); a terrible enemy t wheat crop where it abounds. Care ſhould be taken purge land intended for wheat, of this plant, by fallow and repeatedly harrowing it fine. All land is ſubject to previous to ſowing the wheat. The ſeeds are good food pigeons and poultry.

22. Groundſel (*ſenecio vulgaris*); a garden weed, but uncommon in corn-fields in a good ſoil. It ſhould be ſtroyed previous to ſhedding its ſeed, by weeding out ploughing under: its ſeeds ripen rapidly, and fly ov country by the wind. It abounds in the hop grounds Kent, and is conſidered there as a ſign of land in good c dition.

23. Corn marigold (*chryſanthemum ſegetum*); ſometi very troubleſome and injurious to a crop.

24. Stinking chamomile or may-weed (*anthemis cotul* a diſagreeable and troubleſome weed.

25. Kn

25. Knapweed, or blue buttons (*centaurea's of sorts*); not easily prevented or destroyed on some lands.

26. Corn horsetail (*equisetum arvensis*); a hardy perennial root weed, not easily destroyed.

27. Female fern (*pteris aquilina*) abounds most in very dry sandy land.

Summer fallowing well managed has a tendency to extirpate all sorts of weeds; for the pulverizing of the soil by frequent ploughings and harrowings, combined with the effects of dews, showers, and the solar warmth, disposes the seeds, roots, and prolific principles of all plants to vegetation; which vegetation being effected, and the young plant in a growing state, it is completely destroyed by the next ploughing: this several times repeated, purges the land of weeds, and its whole vegetative force is in consequence directed to the support of the particular vegetable whose seed is thrown in by the cultivator; or should a few weeds remain undestroyed, they are to be drawn out or cut up by weeding. Upon these considerations are founded two very obvious and just principles of practical agriculture, viz. 1. the necessity of summer fallowing foul land; 2. the propriety of being very careful in the choice of seed.

TITHES.

THE question of tithes having been pretty much and pretty often agitated and examined, I cannot expect to be able in this Report to throw any new light on the subject; I shall, however, state my ideas of the effect they have on agriculture; and if that effect shall appear prejudicial, some mode

of preventing or remedying the evil may be propoſed, without doing injury to any of the parties intereſted.

Tithes having been formerly appropriated for a particular purpoſe, muſt be admitted as a property equally ſacred with any other, eſpecially as that appropriation is admitted by thoſe laws which regulate the country where the tithes are produced; and although a conſiderable part of the property ſo appropriated has ſince been alienated from its original purpoſe, yet ſuch alienation having been admitted and confirmed by thoſe laws which protect all other property, no friend to juſtice and the ſtability of property can expect an exoneration from, or an abolition of tythes, without propoſing and providing an equivalent.

Having ſaid this, I muſt at the ſame time confeſs, that tithes being a heavy tax upon the efforts and exertions of human induſtry, are in a conſiderable degree a prohibition of ſuch exertion, and in that reſpect act as a dead weight and a check upon that ſpirit of improvement which it is good policy to encourage by every means that can be deviſed. If an equivalent can be found, and a commutation be effected without injury to any one concerned, ſuch regulation would doubtleſs be an improvement in our political ſyſtem.

The following plan is propoſed as the outline of an exchange of tithes for land, as land will always bear a value proportioned to that of its produce, and even the price or value of labour is meaſured by the ſame ſtandard.

Let an act of parliament appoint in every dioceſe an equal number of the moſt reſpectable clergy and country gentlemen Commiſſioners and Truſtees, and with a power of nominating ſurveyors to value all the tithes belonging either to the clergy or the laity within the dioceſe; and let the act give an option to the land-owners of purchaſing their re-

ſpective

ſpective tithes at the valuation fixed on them by ſuch ſurveyors; the money ariſing from ſuch redemption might be inveſted in the funds, or other ſecurities, until a proper opportunity ſhould offer of laying it out in land; and where the land-owners ſhould refuſe to purchaſe ſuch tithes, the Commiſſioners might have the power of mortgaging them, or of taking up money on their ſecurity, to be inveſted in the ſame way with that ariſing from tithes actually ſold: or, after a given time, the Truſtees might be impowered to ſet apart an allotment of the land of thoſe owners who refuſe to purchaſe, and which, if conveniently ſituated for the former tithe-owner, might be ſo applied, otherwiſe ſold, and the money ariſing from ſuch ſale inveſted as before, until it could be laid out in the purchaſe of land. The execution of ſome ſuch plan would be attended with infinitely leſs trouble and expence than that now incurred by the annual valuation of tithes, as, ſhould the propoſed regulation be once effected, the buſineſs would be ſettled for ever; but under the preſent ſyſtem, the ſurveyor or valuer's buſineſs is continued from year to year, and if that ſyſtem ſhould continue, will be from generation to generation. An equivalent in land muſt certainly be a more ſolid property than tithes. Land may be improved in any degree by good management and induſtry; tithes fluctuate or ſink in value at the will of the cultivator. I think ſome ſuch commutation as this may be eaſily effected, and then all parties would be pleaſed with the alteration.

IMPLEMENTS OF HUSBANDRY.

THE implements of husbandry used here for draught, are waggons and carts; for tillage, double and single ploughs, with and without wheels; drill ploughs, harrows, and rollers for other purposes; winnowing machines, straw engines, &c.

The waggons are either with six-inch wheels, or narrow wheels: a few of the former, kept by the larger farmers, in which six horses are drawn double, convey a load of from three to four tons. The narrow-wheel waggons are drawn by four or five horses, and carry from two to three tons. Six-inch wheel carts are mostly used about farm-houses for conveying dung, or for gravel or stones for repairing roads; or for hollow draining. Some few narrow-wheel carts are chiefly kept by small farmers for the road: one-horse carts also are kept by gardeners, butchers, and people who supply the markets. The wheel carriages of this county are upon a pretty good construction, perhaps not capable of being much improved: they are, I think, if any thing may be condemned, rather too heavy, and should be constructed lighter, if it could be done consistent with the giving them a sufficient degree of strength. Double or two-furrow ploughs are much used, and answer well on light soils, where four horses will plough two acres or more per day. These ploughs are made on a good construction, and require no holder. The single-wheel plough is a very good tool, requiring no person to hold or touch it, except when it is turning at the end of the furrow; they require but one attendant, for which a boy of fourteen or fifteen years of age is sufficient. And here I cannot but remark the superiority of a plough that requires no holder, but a person only to drive the horses, and turn it out and in at

the end of the furrow, to one which requires to be held, and the horſes of which are guided by reins. Theſe ploughs have lately been much improved by the addition of an iron earth-board firmly ſcrewed to the coulter, called here a flay, for ploughing turf, which takes off the turf and turns it into the furrow, where the plough immediately covers it with earth: by this management a turf at one ploughing has the appearance of a fallow, and harrows nearly as well. This ploughing is attended with ſcarcely any extraordinary trouble, but requires the ſtrength perhaps of an extra horſe. It is much uſed here for turf. The common ſwing plough without wheels is uſed to plough hedge-ſides, ill formed corners, or any difficult work: it requires both a holder and a driver. The drill ploughs uſed here are of COOK's invention, or an imitation of it; or another made in the North, and ſold here by Mr. JOSEPH CORNFORTH, machine-maker. The laſt is the cheapeſt. They both do their work well, and cover up the ſeed at the ſame time; which covering is farther perfected by rolling. The harrows uſed here have nothing ſingular in them. The common roller is uſed, and ſometimes the ſpiked roller, on ſtrong land with good effect. Large heavy caſt-iron rollers of from one to two ton weight are uſed, and are excellent for meadows, or for rough or cloddy arable land: they require however a good ſtrength of horſes to draw them. I have lately ſeen a common corn roller, conſtructed of two pieces inſtead of one, being cut through, as it were, and hung with gudgeons in the middle; the advantage of which is, that in turning, it is leſs liable to root up the corn, and may be formed of two ſhort pieces, inſtead of one longer. Machines for winnowing, or dreſſing corn from the chaff, have been long in uſe here: they are now brought to great perfection, and do their work completely, and with diſpatch, requiring not more than about half the time neceſſary in the

common

common way. They are made upon the very best construction by Mr. JOSEPH CORNFORTH, at Bushbury, near Wolverhampton; the price from six pounds to seven guineas each. Upon the whole, the machinery and implements of this county are tolerably good, and little seems wanting in this way; and I cannot help thinking, I hope without partiality, that our implements in general, but ploughs in particular, are equal to any, and superior to most which I have seen; and I have viewed those of many counties. Mr. MILLER on this subject makes the following remark: "The ploughs made in "any country where the plough-men have been most used to "them, are the best. For when I came to this place, I brought "with me ploughs and plough-men out of Leicestershire, "which were good ones so long as my Leicestershire-men "staid: but when they left me, they might as well have "taken the ploughs along with them; for Staffordshire-men "could not plough with them." This remark may serve to shew the difficulty of altering established customs, and that such alterations, even if improvements, must be gradual, and introduced by degrees; as the same workmen are not brought at once to use a new tool expertly: and unless they in some degree approve of any new practice, to make a fair experiment, the master must give his own attention, and do the business himself.

HORSES AND OXEN FOR DRAUGHT.

HORSES for the farmers use, are almost universally used by the farmers in this county, and seem almost totally to have superseded the use of oxen; and are still gaining ground, and

oxen

oxen at the plough are but very little uſed. The reaſon ſeems to be, the great ſuperiority of horſes as to diſpatch, and with which a leſs number of ſervants will do the ſame buſineſs, than can poſſibly be done with oxen; and a number of ſervants being one of the heavieſt of the farmer's expences, horſes are found upon the whole to do the buſineſs cheapeſt. This is by no means theory; for the experiment has been made by many farmers, who, if it had been found their intereſt, would certainly have given the preference to oxen. Amongſt other large farmers, Mr. LOCKLEY of Boſcobel, who, though in Shropſhire, lives on the borders of this county, perſevered in the compariſon for ſome length of time: the following is his opinion.

" The land of this neighbourhood, and of Staffordſhire in " general, is a marl, and not well adapted for ox teams: par- " tially it may; and where the turnip or ſandy land will ad- " mit their uſe, there cannot exiſt a doubt of their utility: " they muſt work eaſy, or they cannot get on at all. And " they appear to me beſt adapted to carting out manure. Six " oxen are neceſſary upon the marl or wheat land in Stafford- " ſhire; nor will that ſort of land always admit of a wheel- " plough, attended only by one ſervant. Six oxen would " work a two-furrow plough in the light turnip land: that " alone is the ſoil to which they are adapted, and of which " Staffordſhire has but a ſmall proportion.

" Oxen are as three to two, to horſes upon light land, and " as two to one upon ſtrong; but oxen will not be even in " that proportion without an addition of keep and care in the " winter."

I knew an inſtance ſome years back of a capital farmer, upon light turnip land, who always recommended the uſe of oxen to others, but never uſed one himſelf, though the extent of his

buſineſs

buſineſs was ſuch as to find employment for near twenty horſes.

Some few oxen are reared, and even fatted here, without being ever drawn: the owners think it more their intereſt to keep them at paſture; and they certainly ſhould be, and doubtleſs are, the beſt judges of what is moſt likely to turn to their own advantage.

Sir EDWARD LITTLETON is the greateſt maſter of draught oxen in the county. He has now no leſs than eighteen employed in carting coal, gravel, his hay harveſt, or any thing elſe wanted; but I believe not at all in ploughing. They are drawn ſingle in harneſs, geared exactly in the manner of horſes, with the collars inverted, and open at bottom. Oxen for draught have been ſtrongly recommended to the tenants; but very few, if any, are in uſe on the whole eſtate, except thoſe kept by the Landlord. I have no doubt but they would readily and gladly ſecond the views of their Landlord in this particular, were it at all compatible with their reſpective intereſts: but the land is moſtly ſtrong, and the few who have tried oxen have declined them. Oxen were formerly much more uſed in this country than at preſent. As a more extended and improved cultivation has taken place, and the price of human labour has increaſed, they have gradually given way to horſes. Agreeably to which idea I ſtill find oxen now moſt prevalent in backward countries; and more ſo in Wales than in England, where I have lately ſeen them in yokes, crawling at a rate ſo ſlow, that no farmer here could bear to ſee it with patience. The fact is, that every attentive cultivator will do his buſineſs in the beſt and cheapeſt way he poſſibly can; and he muſt be a much better judge of this queſtion than any theoriſt can poſſibly be: and the ſingle fact of horſes being preferred, is a ſufficient proof of their ſuperiority. In a public point of view, perhaps, the difference

is

is leſs than has been generally ſuppoſed; for were oxen kept for draught inſtead of horſes, though a farm might produce more beef it would produce leſs cheeſe and butter, which laſt have generally of late been rather the ſcarceſt articles.

FARM-HOUSES AND OFFICES.

RESPECTING farm-houſes and offices little can be ſaid in general, except that thoſe of ancient date appear often built merely by chance, without deſign or contrivance, whilſt thoſe of modern conſtruction are ſometimes well contrived, comfortable, and convenient. Moſt of the modern ones are built with brick, and covered with tile or ſlate. The barns, cow-houſes, ſtables, and offices, are laid out ſo as to ſhelter a compact yard, and ſome inſtances occur of good convenient feeding-ſtalls; but moſt of the old ones are very defective in theſe particulars, and the occupier is obliged to make ſhift as well as he can.

In the conſtruction of farm-offices œconomy ought doubtleſs to be kept in view, and the money ſo laid out as to pay an intereſt to the proprietor; which will always be the caſe in real conveniences, for which the occupier had better pay intereſt than go without them.

In a regular farm, after a decent and comfortable houſe, the next buildings requiſite are barns ſufficiently roomy, with ſtraw-ſheds near enough for the threſher to deliver the ſtraw to the cattle, with a well-fenced rick-yard, ſecured from treſpaſs, near the barns. Stables for horſes, cow-ſtalls, and calf-houſes, and a feeding-ſhed alſo on a proper ſcale, is a good appendage to every farm. A Dutch or hay-barn, on an œconomical and

durable conſtruction, would ſave the occupier ſo much trouble in thatching that he could afford to pay a conſideration for it. This ſhould be in the moſt convenient ſituation for the cow-houſes, where the hay is conſumed. Hogſties and troughs of durable materials, and in a convenient ſituation, are alſo neceſſary. Theſe particular conveniences are well underſtood, and in ſome places have been properly attended to, but in many others are very defective.

Leaſes are often granted: thoſe for twenty-one years are not uncommon, and ſome alſo for a ſhorter term exiſt. In moſt covenants fallowing is conſidered as neceſſary. Hemp, flax, and rape for ſeed are prohibited or reſtricted to an acre. Meadow land is ſecured from the plough. Tenants are reſtrained from cropping and lopping timber, and from taking more than a ſtated number of crops; alſo from ſelling hay, ſtraw, or dung. I do not recollect many other remarkable covenants. Thoſe for ſecuring the rents are of courſe. Sometimes ſyſtems of cropping are inſerted, but little attended to, if the tenant be ſuppoſed going on well. The tenant is generally tied to keep the buildings in repair, the landlord finding materials. Many gentlemen who have large eſtates round their ſeats, or in their neighbourhood, do not grant leaſes, upon the idea of ſuch grants rendering their tenants independent; and to the honour of many ſuch gentlemen it may be obſerved, that the poſſeſſion of their farms upon ſuch tenure is equally ſecure with a leaſe, and that whilſt the occupier behaves with propriety, he is as little liable to be diſturbed in poſſeſſion, and often rents upon eaſier terms.

WAGES

WAGES AND LABOUR.

THE price of labour and the rate of wages vary in different places. They are always highest in the neighbourhood of flourishing manufactures, and lowest in remote parts of the country where no such manufactures are established. The wages of a day-labourer vary in this county from one shilling to one shilling and sixpence per day and beer. In the summer quarter, one shilling per day, with meat and drink, and the draught or carriage of a load of coals, is very common here. Much of the labour is let by the great at prices which enable a good workman to get two shillings or more per day and beer. Hedging and ditching are done by the perch, running measure; digging, by the square perch or rod; threshing, by the bushel: four-pence per bushel for wheat, two-pence for barley, three-halfpence for oats are the prices generally given, besides an allowance of beer, and a payment by the day for dressing or winnowing. Grass is mown at about two shillings per acre and beer; wheat is reaped for five shillings per acre and dinner, or whole board and beer, or thereabouts; it varies a little in different places. The hours of labour are, in winter, from light to dark; in summer, from six in the morning to six in the evening; in harvest, from the time the dew is off in the morning to night, in reaping and carrying; and at other work, according to the emergency of business. The price of labour has increased within the last two years about one tenth, or ten per cent; and the summer or harvest labour rather more; which has been supposed to be caused by the Canals cutting in the county, where a stout labourer can get two shillings and sixpence and three shillings per day, without beer. Perhaps this advance is but just, and in proportion to the advance of the necessary articles of life.

SOCIETIES, BENEFICIAL PRACTICES, PROPOSED IMPROVEMENTS, AND OBSTACLES TO IMPROVEMENT.

THERE are no Societies in the county that I know of for promoting agriculture. The principal inducements are good markets, ſelf-intereſt, and perhaps in ſome degree a ſpirit of emulation between different occupiers, from which inducements ſome of the farms have been brought to a pretty correct ſtate of good cultivation, and which will be ſtill farther improved if all the above inducements ſhall continue. Mr. BRADBURNE obſerves, reſpecting Societies, "I "have not heard of any. I ſhould have been much pleaſed "could I have anſwered in the affirmative." Reſpecting a turn for improvement, "I never at any period obſerved "this neighbourhood ſhew more inclination to purſue the "preſent improved ſyſtem of huſbandry:" and reſpecting real improvements, "A more regular ſyſtem of ſummer fallowing, "and of not taking above two crops afterwards, would be "more productive of both grain and ſtock."

Amongſt the beſt practices of the county, one ſhould have been mentioned more fully before, which is the extenſive application of lime as a manure, of which great quantities are annually and conſtantly uſed upon all ſorts of land. It is ſuppoſed to attenuate, break, and divide ſtrong ſoils, to bind and contract ſandy ones, and to correct the acidity of old ſour uncultivated lands. Its utility is very generally admitted. It is laid on at the rate of from ſix to ten quarter per acre; the price at the Works being from three ſhillings and ſixpence to four ſhillings and threepence per quarter, and the carriage and other expences nearly, and at ſome diſtances quite, as much as the prime coſt. It is generally laid on fallow in ſpring or ſummer, and harrowed in, and is uſed both

for

for turnips and wheat, and I think in a more extenſive way than I have obſerved elſewhere. The improvement of lands by marling alſo has been long practiſed, and in a very extenſive way.

The great Improvements of which this county is capable, ſeem to be chiefly the following: Firſt, The cultivation of its waſtes and unimproved land. Secondly, Extending the practice of improving land by irrigation, or watering, to all places capable of that improvement, and wherever the water is not already appropriated. Thirdly, The embankment of rivers to prevent the deſtruction of hay, with ſluices conſtructed through ſuch banks, to let through the water for irrigation at pleaſure. A work of this kind I had the pleaſure of ſeeing upon the Trent below Stone. But for this buſineſs to be done in the beſt manner, it ſhould be taken up in a general way. Fourthly, Draining of fenny or ſpringy lands. Much has been done, and much remains to be done in this way. Fifthly, The cultivation of the better and finer graſſes, clean and unmixed with weeds, at the time of laying land to graſs; and though nature be very bountiful, and ſoon fills the turf ſpontaneouſly, yet there is great reaſon to believe this work would be much improved and facilitated by art and induſtry. Theſe, with the extenſion of the beſt parts of our preſent practice, ſeem to conſtitute the higheſt perfection of agriculture to be expected at preſent, and indeed would add greatly to, and very much increaſe the landed products of the county.

Amongſt the obſtacles to improvement tithes have been already mentioned.

Another great obſtacle to improvement is perhaps, pretty often, the want of ſufficient capital in the occupier, not ſo much for the purpoſe of ſtocking his farm, as for that of puſhing forward and getting through thoſe undertakings which

which may be neceſſary to make his farm productive; the capital wanted upon a farm of any extent being very conſiderable; eſpecially if ſuch farm be in a backward or unimproved ſtate. For though five pounds per acre may be a pretty good allowance for capital upon land already improved, it is by no means ſufficient under different circumſtances, and where a number of improvements are wanting. Fencing, ditching, draining, marling, liming, town manure, with the purchaſe and neceſſary ſupport of ſtock till the effects of ſuch exertions can come round, form obſtacles inſurmountable to a ſmall capital; and the riſk is too great for ſuch to run, for fear of failing in the attempt. In all ſuch caſes I think the landlord ſhould come forward by himſelf, or his agent, to advance money upon real permanent improvements only; ſuch as draining, purchaſe of lime or dung, manuring on the turf of land in a fit ſtate for permanent paſture; and ſhould charge to the tenant intereſt (ſuppoſe at five per cent) for money ſo advanced. This, I think, would be a prudent reſervation in leaſes—for the landlord to have power to lay out money in this way, and lay the intereſt on the rent; having not the leaſt doubt but all money judiciouſly ſo laid out, would anſwer the purpoſe of every party concerned: of the landlord, by improving his land, giving him intereſt for his money, and the beſt ſecurity: of the tenant, by a certain and permanent improvement of his farm, which would well enable him to pay the additional rent: of the public, by removing an obſtacle to, and by furthering the means of national improvement.

My neighbour, Mr. Fowler, of Erdington, mentions the following obſtacles, which he thinks ſhould be removed. "The preſent law in limiting the number of horſes on "turnpike roads is not one of the leaſt. If all carriages "were limited to weight only, that muſt and would have

"the

" the defired effect of keeping the roads in good order. " Suppofe fix horfes were allowed inftead of four, two of " them would moft likely be breeding mares or young horfes " likely to improve; the fix would not require to be fo large " as if four only were kept, but of a lighter nimbler fort, " and would be kept at a lefs expence than four, that are " required to do what the fix fhould do. There would be " more probability that the feed would be fown in due feafon, " that the harveft would be finifhed quicker, that more lime " would be obtained for carrying on other improvements of " the farm with the horfes. I alfo think, if the tolls at turn- " pikes were collected by the weight drawn, it would be much " fairer than the prefent mode of collection by the number of " horfes. There is another obftacle to the improvement of " land, the employment of Attorneys-at-law by fome gen- " tlemen of large landed property as their agents, who, " although eminent in their profeffion, know little or nothing " about the proper management of land, and confequently " are unfit to give advice to tenants; unfit to be woodmen, " and totally unfit to have the direction and management of " landed property refpecting its cultivation." Mr. BRADBURNE, who is a confiderable practical farmer, and upon his own land, fays, " If one or more Societies (for the improve- " ment of agriculture) were inftituted in each county, the " members of fuch Societies would be more communicative, " and a fpirit of emulation might be excited." Mr. CURTIS thinks the greateft obftacles to the improvement of land are " poverty, and an averfion to innovation." Due encouragement from landlords in furnifhing materials for neceffary reparations, and in not overwhelming a tenant with too heavy a rent, may be confidered and ranked amongft the principal incitements to improvement.

TIMBER.

TIMBER, PLANTATIONS, AND WOODLANDS.

THE county of Stafford ſtill continues well ſtocked with all kinds of timber, notwithſtanding the immenſe quantities that have been cut down of late years. Amongſt the many well-timbered eſtates, in the county, the following have been ſeen, and ſome of them particularly examined, by the Writer of this Report. Many well-timbered eſtates have undoubtedly been over-looked and are omitted; but the account of thoſe which follow is ſufficient to ſhew, that ſome attention has been, and is ſtill paid to this article by many gentlemen of diſtinction and property.

The firſt and beſt timbered eſtate, is that of LORD BAGOT in the neighbourhood of Abbot's-Bromley. The woods extend over many hundred acres, and almoſt wholly conſiſt of oak, the ripeſt, fineſt, and beſt that I ever ſaw; and I believe I run no riſk of exceeding the bounds of truth, if I ſay the beſt in the kingdom. A very large quantity of oak in theſe woods is now quite ripe, and ſome even decaying. Many of the oaks carry timber to thelength of ſixty and ſeventy feet, and in LORD BAGOT's Park are many hundreds of very extraordinary bulk, containing from two hundred to four hundred feet of timber each. I could pick out many worth ſixty guineas a-piece, and ſome even more. This timber is of conſiderable antiquity, and mentioned by Dr. PLOTT, as full-grown timber in 1686. I was informed upon the ſpot, that for theſe woods one hundred thouſand pounds have been offered, and that his Lordſhip has half as much timber in Denbighſhire. Total value of timber one hundred and fifty thouſand pounds, which in the three per Cents at the preſent price, would purchaſe an income for ever, of more than ſix thouſand guineas per annum. The ſucceſſion woods and young plantations are very conſiderable, and ſtill conti-

nuing; and as Mr. HARVEY, his Lordſhip's ſteward, very judiciouſly obſerves, upon land not worth a rent of ten ſhillings per acre, paying better, underwood included, than in any other way: and it is upon a poor cold land of this deſcription, that the above fine timber chiefly abounds, the ſoil being a moiſt gravelly loam, upon a clay or marl bottom. The young plantations are made ſometimes by ſowing acorns, with wheat after ſummer fallow; and ſometimes by planting out young plants of oak, and other wood; in which caſe, at the end of one or two years, when ſuch plants have taken well to the ground, they are cut off at the ſurface, and the ſecond ſhoot truſted to for the tree; this ſecond ſhoot thriving with much more luxuriance and vigour than the firſt, checked by tranſplanting. Alſo after cutting down a wood, the replanting is ſometimes effected by ſtriking in with the pick-ax a ſufficient number of acorns and other ſeeds of Foreſt-trees or underwood. And all theſe methods have been attended with ſucceſs. The young plantations are all well fenced, and carefully guarded from treſpaſs by a woodman appointed for that purpoſe.

The ſecond timbered eſtate, in my opinion, is Chillington, the property of THOMAS GIFFARD, Eſq. whoſe hoſpitable and benevolent anceſtry and family have reſided here for many centuries. From this eſtate has been ſold within twenty years, timber to the amount of thirty thouſand pounds; and the timber remaining on the eſtate is worth at leaſt an equal ſum. The ſucceſſion woods and young plantations are here very extenſive, and of luxuriant and vigorous growth. Some very fine ripe oaks grow on the ſide of a gravel road, near the Pool, a large and beautiful piece of water. In the modern plantations, oak has been particularly attended to: but there are many other varieties of timber-trees extremely promiſing in growth. The young plantations are well fenced, and ſecured from treſpaſs, without which precaution

planting would be in vain. This branch of agriculture, for I can call it by no other name, is peculiarly the province of the Gentleman; to whom I ſhould conceive nothing can give a greater or more rational pleaſure, than viewing the progreſs to maturity of theſe, as it were, the work of his own hands, whilſt at the ſame time they improve his eſtate, and ſhelter and ornament the country.

Teddeſley Park, Sir EDWARD LITTLETON's. The houſe at Teddeſley is a commodious, modern-built, elegant manſion, commanding an extenſive view of a well-cultivated country, to the weſt, and of the hills and extenſive waſte of Cannock Heath to the eaſt. The timber and plantations on this eſtate are very conſiderable. Manſtey Wood is an extenſive coppice of fine ripe oak timber; beſides which there are many other coppices, dingles and clumps, of full-grown oak, aſh, and other timber. The ſpring coppices and young plantations of different growths, as by information from Mr. HALL, the ſteward, cover at leaſt one hundred acres; and in them the oak has been an object of particular attention. It is further to be obſerved, that theſe plantations are generally upon poor cold land; on a gravelly marl or clay bottom, on which the oak will ſucceed well; and which ſort of land being of no great value for corn or paſture, is very properly applied to the growth of timber and underwood.

Wrotteſley Eſtate, the property of Sir JOHN WROTTESLEY, Bart. contains ſome conſiderable woods of ripe, well-grown timber. Alſo extenſive plantations of more modern growth. At Enville (LORD STAMFORD's), the woods and plantations within the circumference of the pleaſure-grounds are very extenſive, and extremely well-ſtocked with timber-trees, and underwood of every ſort; amongſt which the oak predominates in great profuſion, kindly, and of vigorous growth. The woods of Upper Arcley are very

exten-

extenſive, and well ſtocked with oak of various ages, from large timber-trees to ſaplings. Hagley-Park is out of the county, but cloſe to the borders, adjoining the pariſh of Clent. I ſhall juſt obſerve, that it contains large quantities of exceeding fine ripe timber, of the better ſorts, and of a firſt-rate quality. Some of the oaks are of great length and dimenſions, and fit for any uſe to which oak is applicable. The pariſh of Harbourne is well wooded. The Biſhop's woods in the neighbourhood of Eccleſhall are very extenſive, and ſaid to contain one thouſand three hundred acres: they are managed in a ſyſtem, the exact particulars of which I could not learn; but underſtand that a portion is cut down every year, and when the one thouſand three hundred acres have been ſucceſſively taken, that which was cut firſt, is ready for cutting in a ſecond rotation. A regular annual revenue is thus drawn from the woods without injury. Madeley Woods, near Newcaſtle, well ſtocked with oaks of different ages, were formerly a park, but "Ceres has "reaſſumed the land," and the breaks and lawns between the woods are incloſed, and in the uſual courſe of arable cultivation.

The plantations at Fiſherwick (LORD DONEGAL'S) are of little more than twenty years growth, but very promiſing. BROWN, who projected theſe plantations, aſſured the proprietor, as I have been told, that he had planted for him one hundred thouſand trees, and in a certain number of years, which he then mentioned, thoſe trees would be worth one hundred thouſand pounds. There is a poſſibility, that this prediction may be verified in the time of the preſent, who was alſo the then proprietor. Some of the oaks are even now worth fifteen ſhillings each, and they abound in profuſion amongſt firs and other ſorts by which they are ſheltered, and encouraged in growth. I obſerved ſome large ripe oaks in

the park; and in the pleasure-grounds an ash, which I believe contains at least four hundred feet of timber.

Broughton pleasure-grounds, or paddock (Sir THOMAS BROUGHTON's), abounds with plantations, clumps, and shady spreading trees, particularly sycamores. On the other side of the road is a fine promising spring coppice of oak; the gradual thinning of which, by cutting out underlings, should be attended to.

Hilton Park, belonging to Mr. VERNON, contains plenty of flourishing oaks; and in the pleasure-grounds are some very fine ripe well-grown trees of this species, the pride of the forest: and a great variety of other timber-trees grow there in the utmost luxuriance. The rides and plantations are very extensive, and furnished in the most innumerable profusion, with evidence of the planter's vigilant attention. Mr. VERNON was a very early planter, and now, in the prime of life, has the pleasure of seeing some of his first efforts in this way fast approaching towards maturity. Many of the larches, and Scotch as well as other firs of his planting, contain twenty feet or more of timber, and are now in a very growing state.

Burntwood, near Ashley Common, belonging to Mr. MEYNELL, seems well-stocked with young plants of oak, and is very extensive.

The estates of Mr. GOUGH at Perry Bar, Oldfallings, near Bushbury, and Walton Grange, near Gnoshall, are all well timbered. Perry Park and neighbourhood has a good deal of ripe timber; considerable young plantations and trees of every progressive stage of growth. Oldfallings estate and neighbourhood is plentifully stocked with well-grown oak and other sorts of timber, and Walton Grange has an excellent oak coppice of considerable extent. Bentley estate, near Walsall, is extremely full of oak, both in coppices and hedge-

rows:

rows: the proprietor is Mr. ANSON. At Sugnall, near Stafford, I obſerved ſome ſmall neat plantations, amongſt which oak has not been forgotten. As this valuable tree ſucceeds well amongſt others by which it is ſheltered and encouraged in growth, but is liable to be over-topped by many others, which, more luxuriant, prevent its leading ſhoots from penetrating thro' their foliage; ſuch obſtruction ſhould annually be cut away, and the growth of oak encouraged as ſuperior to all others, both in majeſtic beauty and national conſequence. I obſerved this attention neglected in ſome of theſe plantations. Conſiderable woods and plantations grow on the Shutborough eſtate, (Mr. ANSON's), as well as on that of Sir WILLIAM WOLSELEY's; and alſo upon Mr. CURZON's, near Rudgeley. The eſtate of Mr. FOWLER in this neighbourhood at Pendeford, is well-wooded, both in hedge-rows, young plantations, ſingle trees, and clumps of very fine well-grown oak: it has alſo a very promiſing coppice of oak. Other ſmaller eſtates in this neighbourhood are well ſtocked with timber, particularly that of Mr. FLEEMING at the Wergs near Tettenhall, where, amongſt a number of well-grown trees of various ſpecies, I could pick out a few oaks worth thirty guineas a-piece. Upon the whole, the county is well-timbered, and has now in it ſucceſſion growths ſufficient for the ſupply of a great length of time; and I have no doubt but the public ſpirit of the times will ſecure that ſupply to future ages.

I have two more obſervations to make on planting: the one relating to the proper ſcite of ground and ſituation of plantations, whether intended for ornament or profit: the other on the timber beſt adapted to fulfil thoſe objects, and at the ſame time to anſwer the purpoſes of pleaſure and profit to the planter, and of utility to the public.

With

With regard to the proper ground for plantations, every gentleman or land proprietor of prudence and taste, who resides on his property, will furnish himself with a shady retreat from the burning sun, that shall afford at the same time a shelter from the storms of winter. For this purpose he will keep up a sufficient shade near his habitation, in that situation which local circumstances shall direct. Large plantations or coppices for profit should not be made on good land; always of much more value for corn or pasturage; but either on moist land of small value, upon a clay or marl bottom, where timber often grows well; or rather, where such land abounds, upon precipices, and sides of hills impracticable to the plough; and where it often happens the land unplanted is of little or no value. I have often observed, that timber succeeds particularly well in such situations; and the making plantations there is attended with many advantages: 1. The roots of trees twining and interweaving with the soil, prevent it being washed by torrents into the vallies, which is the cause why many such situations are now bare and almost void of soil. 2. The falling and putrefaction of leaves tends to thicken such soil, and render it by degrees richer and more capable of forcing the growth of timber. 3. Such land is often of little value, and incapable of being improved in any other way. And I cannot refrain upon every occasion, from calling particularly upon all public and patriotic Societies to confine their premiums for planting, to land of small value; or impracticable to the plough. The corners of fields, where four unite, are not improper places for small clumps in any land: and in hedge-rows a few oaks, elm, or beech, are a great ornament, without doing an injury: but ash, always very injurious to arable and pasture land, should by no means be planted in hedges, but reserved for clumps and coppices.

Re-

Respecting the sorts of wood, oak is undoubtedly the first forest tree, but being slow of growth, the planter can seldom expect personally to reap the reward of his labour: it should, however, be always plentifully intermixed with other sorts, where it will be ready to supply their place, and fill up the ground when its inferior neighbours shall be cut away. I think, without a mixture of oak, no plantation can be approved.

Ash is an extremely useful and valuable wood for many purposes, but not very quick of growth; requiring from fifty or sixty to eighty years, to arrive at tolerable maturity. Elm, the common or narrow-leaved is very proper for hedge-rows and plantations; it makes a large tree, in about the same time as ash. I have had some well-attested instances of very fine large elms having grown up in the life of a person, who remembered them planted. We have now in this parish, a fine square grove of elm upon Tettenhall Green, of about seventy years growth: the trees contain seventy or eighty feet of timber each. The witch elm has been known in several instances to grow amazingly quick: my Father was present at the planting of one in the paddock here at Pendeford, which being cut down at the end of thirty years contained sixty feet of timber, and was sold at one shilling per foot; and I observed a most rapid growth in some upon this farm: the wood is of a good value, and this sort is equal to most in quick return to the planter. Respecting the fir tribe, planters have certainly been rather too partial here, tho' many of them are of rapid growth. The larch, the Scotch, and other firs, will often measure as many feet of timber as they number years of growth, or even more. I cannot but strongly wish, however, that every gentleman making a plantation of firs would intermix at least an equal number of English forest trees, and not forget oak. As such plantation proceeds

in growth, the trees leaſt profitable may be cut away. Beech and ſycamore are uſeful, and of tolerably quick growth, and are therefore a proper mixture with other wood. Many inſtances may be produced of the rapid growth of poplar, and the ſame individual has been known to plant and cut down poplars containing from ſixty to eighty feet of timber each: and I remember the planting of ſome myſelf rather more than thirty years ſince, ſome of which now contain more than thirty feet of timber; the ſort, the black poplar *(populus nigra)*. This ſort ſucceeds beſt on a moiſt ſoil, or by a brook ſide. The trees of this ſort are apt in ſome ſeaſons to die in great numbers, even when large trees. The white poplar, or abele (*populus alba*), makes a fine large tree, and will ſucceed on almoſt any ſoil. I have ſeen very large ones on the top of a high bank, and was ſhewn ſome in the plantations at Chillington lately of about twenty years growth. They are upwards of thirty feet high, and would meaſure four feet round at the bottom. The Lombardy poplar, ſo highly extolled ſome years back, is a mere weed in compariſon of our own native trees before-named, and little ſuperior to the aſpen, the worſt of the ſpecies. The Lombardy poplar in this country is a pole rather beautiful to the eye, but of no promiſe as a timber-tree. The wood of the poplar in general makes very good flooring-boards and packing-caſes. Some of the willow ſpecies are remarkable for quick growth; and the loppings in the hop countries are uſeful for poles. Amongſt plantations, perhaps, that of fruit-trees has been too much neglected: and the raiſing of orchards in this country may be ranked with its agricultural improvements, as producing an uſeful article, little interfering with its preſent productions.

In

In the foregoing account of woods and plantations, it is very poſſible that many conſiderable ones may have been omitted, as not coming under the Writer's obſervation.

MISCELLANEOUS REMARKS AND OBSERVATIONS, MADE IN A TOUR THROUGH THE COUNTY IN THE SPRING OF THE YEAR 1794, NOT INCLUDED IN THE AFOREMENTIONED ARTICLES.

CALLED at Fiſherwick, the noble Seat of the Marquis of DONEGALL, on the weſt Bank of the Tame.

Here the genius of a BROWN, aided and ſeconded by the munificence of the noble owner, have conſpired to render a dreary moraſs one of the moſt delightful ſpots in nature, and have in a great meaſure ſucceeded: which ſucceſs is ſtill further heightening by the improvements of Mr. ELKINGTON, in the interception of ſprings, and the diſcharging of ſtagnant water. The houſe and offices here are nobly magnificent, and the hoſpitality within correſpondent. The ſhrubberies and plantations are not an exact copy of nature, but that improvement and embelliſhment of nature itſelf, which was reſerved for human art, ingenuity, and induſtry. A ſmall brook from Freeford, which here falls into the Tame, aſſumes through art the grandeur of a noble river; and even exceeds in appearance this river, except indeed when the Tame after a profuſion of rain, overflowing its banks, appears like an immenſe lake. The demeſne at Fiſherwick conſiſts of nearly a ſquare mile, or about ſix hundred acres. The paſture part of it is ſtocked with deer to the amount of three hundred couple, or more;

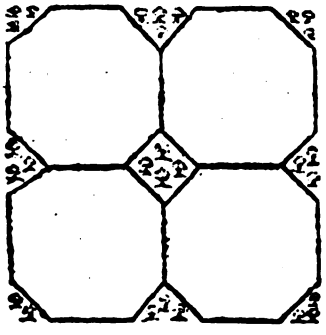
alſo with horſes, cows, and ſheep. A conſiderable part is mown for hay, and the mown land kept in good heart by the overflowing of the Tame.

The cows here are very good, of the long-horned breed, thick and heavy in the carcaſs. The ſheep are of different breeds; Leiceſter, Wiltſhire, South Down, Cannock Heath, and croſſes from theſe. The South Down wethers had been killed with much profit, as the ſteward informed me. A few South Down ewes ſtill remain: they are a thick ſquare ſmall ſheep, to which the natives of our own commons, where they are bred with attention, bear a great ſimilitude. But no reſpectable farmer here, with an incloſed farm devoid of common right, would think them good enough for his incloſed paſturage, unleſs as annual ſtock.

I am obliged to the Rev. Dr. FALCONER for his remarks on ſome of the pariſhes in this neighbourhood, which made my own examination of them leſs neceſſary. His remarks extend to Fiſherwick, Whittington, Tamhorn, Elford, Wigginton, Heſelor, Thorp, Conſtantine, Clifton Campville, Harenton, Harleſton, Statfold, and Scierſcott. In this tract of country, the banks of the Tame are good meadow land. The upland in Fiſherwick, Whittington, Tamhorn and Statfold, rather inclines to a light or gravelly ſoil. The other pariſhes or lordſhips are a ſtrong or mixt loam: the courſes of crops are the ſame as mentioned under that article. Some conſiderable dairies are kept, and cheeſe is the main object of ſuch dairies. The ſheep are pretty generally of the Leiceſterſhire breed. The country is wholly incloſed, except two commons or waſtes, which are Whittington Heath, conſiſting nearly of ſix hundred acres, where Lichfield races are held. It is now a good ſheep walk, and would, if incloſed and cultivated, be ſome of the beſt turnip and barley land in the county. The other common is at Clifton Campville, now a

good

good sheep-walk: it contains about four hundred and fifty acres. The inclosing of it is in contemplation. This country is in many places subject to wall-springs, which are cured by underdraining. Very little timber grows in these parishes, except at Fisherwick and Tamhorn-Park, which latter, though a woodland, is more productive of rabbits than timber. The roads in these districts are generally good. The cows at Tamhorn are subject to the foul water. Dr. FALCONER concludes his remarks with observing, "that labourers "wages have lately advanced so much in this neighbourhood, "that it is not easy to ascertain the average price: female "servants, in particular, can hardly be hired at any price. "It is attributed to the employing so many women in the "different cotton-mills lately erected. Some regulation re-"specting the wages of servants employed in husbandry "would be of universal use." Respecting timber and planting, the Doctor submits the following plan to the consideration of the Board: "That in every Act for an inclosure, "a clause should oblige the proprietor of the new inclosed "land to plant a certain number of oaks in proportion "to his share of the inclosure, and should direct the



"plantations to be made in the "angles of the fields, agreeable "to the annexed sketch: by "adopting which plan, a less "quantity of posts and rails "would be required, and the an-"gles of each field would be con-"verted to a profitable use, and "corn would grow close up to the "rails: whereas no corn will now grow in such angles. This "is not the only advantage that would arise from this plan: "the trees full grown, would afford good shade for cattle, and

" an easy communication through these plantations would be
" found from field to field. It would also be very ornamental
" to the country."

The stock of cows in this district are generally long-horned, and of superior quality. Considerable tracts of excellent meadow-land, subject however to floods, are found on the side of the Tame. On the Trent also, we find excellent meadows; the hay-meadow at Burton, which is a kind of public property, would be worth many guineas per acre, if rented. Burton is a considerable town, both of trade and manufacture.

Tutbury is a pleasant little town, containing nearly one thousand inhabitants, with a lately established cotton-work upon a considerable scale: it does also some business in the wool-combing branch. Tutbury-Castle, now in ruins, stands on a lofty eminence, stupendously overhanging the Dove, the meandering of whose waters, and the range of fertile meadows on whose banks, may from hence be traced to a great distance either way, up or down. This eminence, abruptly formed by nature, has been rendered less easily accessible by the defensive military arts of former times. It is composed of an immense heap of marl. The ruins of the building are principally of hewn free-stone, with admixtures of gypsum; it has apparently been battered from a hill on the contrary side of the town. The property is in LORD VERNON of Sudbury, in this neighbourhood. Here is a draw-well of good water, but of considerable depth; low enough, I suppose, to be supplied from the Dove. On the declivity of the castle-bank, on the west-side, I observed the following remarkable plants.

1. Dwarf elder, (*sambucus ebulus*), in great plenty.

2. Wild teasel, (*dipsacus sylvestris*), in considerable quantity.

3. Wild

3. Wild woad, or Dyer's weed, (*reseda luteola*), a few specimens.

Having often observed the first and third of these plants in similar situations about the ruins of old castles, I am led to conjecture, that they have been formerly cultivated in these places for some use.

The fertile meadows on the banks of the Dove are an object considerably interesting. This river, which, in the first part of its course, separates for many miles the counties of Stafford and Derby, rises from springs under the lime-stone hills of the Moorlands and the Peak; and at times receives an amazing addition from torrents rushing down those hills, after heavy rains or the melting of snow. Its channel has a great declivity, and in many places this river comes tumbling over the rocks in cascades; and in its greatest swell pushes on with great rapidity, which continues to below Rocester, where the water has a greyish cast, apparent to the eye, from its being impregnated with calcareous earth, to which undoubtedly may be attributed the extraordinary fertility of its banks. For after receiving the Churnet, a considerable stream from a part of the Moorlands, not abounding with lime-stone, its water becomes diluted; and although its banks still continue excellent, yet they visibly decline in richness, and the extraordinary fertility ceases. Immense quantities of lime-stone are found both on the banks and in the channel of the Dove, in the first part of its course: this lime-stone has fallen in length of time from precipices, which over-hang the river. The fertility of land on the upper parts of this river, about and above Rocester, is, and always has been proverbial, "as rich as Dove;" being an epithet applied to any spot highly forced. This land has a perpetual verdure, and the spring-floods of this river are very gratifying

ing to the land-occupiers, who have this proverb, "In April "Dove's flood is worth a King's good." It is alſo ſaid of Dove-banks in ſpring, that a ſtick laid down there over-night ſhall not be found next morning for graſs. It is very certain this river fertilizes its banks like another Nile; but ſometimes riſes ſo high in twelve hours as to carry off ſheep and cattle, to the great alarm of the inhabitants, and in as few hours abates and returns again within its own channel. Below Roceſter, where this river receives the Churnet, the plain ſpreads very wide, and continues ſo with variations to below Uttoxeter: the plain here on either ſide the river is compoſed of deep rich mellow loam, impregnated with, if not wholly formed of a rich ſediment of mud and calcareous earth. The herbage is very fine, without any mixture of ruſhes or aquatic plants. The graſſes are of the common ſorts: but the foxtail, the vernal-graſs, the *poa's*, the dog's-tail, and the meadow *bromus's* predominate. It contains alſo rib-graſs, meadow and white clover, upright crowfoot, and the common herbage of other meadows: not without a mixture of the curſed or common thiſtle, or ſaw-wort, (*ſerratula arvenſis*), ſo common in every ſoil and country. The plain within reach of the floods of Dove, extends in ſome places to near a mile in breadth, particularly oppoſite Uttoxeter, and amounts to ſeveral thouſand acres, almoſt entirely paſtured with cows, ſheep, and ſome horſes; very little of it being mown for hay. The uncertainty and ſuddenneſs of the floods make the riſk of hay too great. The rent of the Dove land generally riſes to near forty ſhillings per acre; and I was informed by an eminent grazier on the ſpot, that were it not for the inconvenience of floods, the land equally rich as at preſent, would be worth ten ſhillings per acre more, even for grazing: as it ſometimes requires a ſharp look-out to preſerve the ſtock from drowning,

even when there has been little or no rain on the ſpot. A ſudden rain or melting of the ſnow on the Moorland or Peak hills is ſufficient to inundate large breadths of land near this river: as the declivity or fall is great, the ſwell of water is ſudden, but ſoon over, and the largeſt floods continue but a few hours. It is to be remembered, however, that the extraordinary fertility of theſe lands is owing to this circumſtance, however complained of as an inconvenience.

The moſt remarkable wild or native plants, that I noticed growing near the Dove, were,

1. Wild rape (*braſſica napus*); as luxuriant as any I ever ſaw cultivated.
2. Tanſy (*tanacetum vulgaris*).
3. Water muſtard (*eriſymum barbarea*).
4. Butterburr (*tuſſilago petaſites*).
5. Jack by the hedge (*eriſymum alliaria*).
6. Hemlock (*conium maculatum*).
7. Figwort, or water betony (*ſcrophularia aquatica*).

SOME PARTICULARS OF THAT PART OF STAFFORDSHIRE CALLED MOORLANDS, NOT INCLUDED IN THE FOREGOING ACCOUNT.

THE North part of Staffordſhire, called Moorlands, is ſituate to the North of a line conceived to be drawn from Uttoxeter to Newcaſtle under Line. The face of this part of the county is various, but in general hilly, with large tracts of the land waſte, or uncultivated. The firſt market-town from

Uttoxeter is Cheadle, ſituate in a pleaſant vale of good mixed ſoil, but ſurrounded by rude and barren hills: theſe hills are compoſed of huge heaps of ſterile gravel, that on the weſt ſide overhang the town. The principal herbage on this hill conſiſts of broom, heath, whortleberries, mountain cinquefoil; all beggarly and of diminutive growth: alſo of milk-wort, the mountain *carex's*, matt-graſs, *ciſtus's*, and knap-weeds. The hills north and weſt of the town, in the pariſhes or liberties of Cheadle, Tean, and Dilhorne, are of the ſame material, upon an underſtratum of ſand or ſandy rock: the herbage the ſame as before, but pitiful and beggarly: amongſt which heath (*erica vulgaris*) is generally moſt predominant. Theſe barren waſtes are pretty extenſive, and not worth, I think, one ſhilling per acre as paſturage for ſheep, or any other animal: they are, I fear, generally too poor and beggarly to be reclaimable by cultivation for the purpoſes of corn or paſturage. I cannot, however, help entertaining a ſtrong idea that they might be converted into coppices and plantations of timber and underwood: the Scotch and other firs and ſycamore would probably ſucceed. This laſt is now become a valuable wood, being worth from eighteen pence to two ſhillings per foot, at Birmingham, and has, I underſtand, ſucceeded well in ſome very expoſed and barren ſituations. Perhaps, many other of our native timber-trees might ſucceed, intermixed with theſe, as one would ſhelter and ſcreen another. To give any ſuch plantation a fair chance of ſucceſs, I ſhould propoſe to begin not on the ſummits, but on the declivity of the hills: and as ſuch firſt plantations increaſed in growth, to proceed with freſh ones nearer the ſummit, till the whole ſhould be covered: by which management the plants of ſtrength and growth would be made to protect and ſhelter thoſe of tender age. The putrefaction and rotting of leaves from ſuch plantations would increaſe and enrich the ſurface ſoil; and as they

came

came to maturity, the woodlands, upon plain and practicable ground, might be cleared and converted into arable and pasture land. If such scheme be practicable, which I think it certainly is by judicious management and perseverance, these dreary barren hills, which now convey an idea of nothing but poverty, want, and misery, would not only ornament and beautify the country, but, by furnishing it with timber and wood, would answer the purposes of more valuable land, and enable an equal breadth of plain woodland to be converted to pasture and arable, without rendering the supply of these necessary articles uncertain or precarious.

The commons or wastes between Cheadle and Oak-Moor, called Hay-shutt, Ranger, and Aulton Common, consist of an immense number of rude heaps of gravel upon an under-stratum of soft sandy rock, thrown together without order or form, or rather into every form that can be conceived, into sudden swells and deep glens, with scarcely a level perch: the mind, endeavouring to account for their formation, must conceive it owing either to some violent convulsion of nature, or some strange confusion of matter. This tract, impracticable to the plough, now rough, barren, and bare, might be improved into woodland and plantations, and some open spots of the most favourable aspects might be reserved for gardens to cottage tenements, and cultivated with the spade and hoe. Above Oak-Moor, to the north-east, I had the pleasure of seeing the idea before stated of planting precipices executed. A plantation has been made there on a declivity as barren, rocky, and bare of soil as any before described. This plantation seems about twenty years old, is in a thriving state, and contains the following sorts, viz. Scotch fir, spruce, oak, lime, birch, sallow, and mountain ash. This is the highest improvement to which the sides of barren precipices can possibly be brought by human industry;

 and

and I think that all our public and patriotic Societies who offer premiums for planting, ſhould confine ſuch premiums to grounds impracticable to the plough, or of ſmall value, not exceeding *per* acre a ſmall ſpecified ſum. I conſider extenſive plantations upon rich level, arable, or paſture land as a public nuiſance and national evil, at leaſt ſo long as there are large tracts of the above deſcription remaining unoccupied.

A little north of Oak-Moor the lime-ſtone country begins, and extends over a great breadth of country to the north, eaſt, and weſt, in many places riſing out of the main ſurface in huge cliffs. The Weaver Hills are of conſiderable extent. They are compoſed of immenſe heaps of lime-ſtone, which I was much pleaſed to find covered with a rich calcareous loamy earth, capable of being improved into very good arable or paſture land. They are incloſed in large tracts by ſtone walls, but not ſubdivided, and large breadths have never undergone the leaſt improvement; which I much lament, as the neighbouring lands which have been improved are covered with an excellent fine turf, and bear good crops of grain. Theſe hills are a very elevated ſituation, overlooking, or at leaſt as high as any of the Moorland or Derbyſhire Peak hills, which may be ſeen from their ſummits. I believe them to be from one to two hundred yards perpendicularly higher than any of our hills in the ſouth of the county: the fall even from the foot of theſe hills to the higheſt parts of the Dove or the Churnet is very great, and thoſe rivers are very rapid. On one of the ſummits of theſe hills, in a very red ſoil, I found growing indigenous my old friend, which I had long ſince cultivated, the upland burnet (*poterium ſanguiſorba*). This plant I have never before ſeen or heard of as a native of Staffordſhire; but it is very common in the calcareous ſoils of Rutland and Bedford, being

ing a very different plant to the meadow burnet (*sanguisorba officinalis*). The herbage of these hills contains many good plants, both grasses and trifoliums, but the hills are much overrun with uneven lumps, which seem to be worn out or decayed ant-hills, covered with moss or lichen; and though they are a tolerable sheep-walk, I must consider them as little better than waste, and capable of a high degree of improvement by cultivation. Stanton-Moor, to the east of these hills, is a considerable waste on a lime-stone. The sheep-stock of this country has been mentioned before.

Large quantities of lime are burnt upon Cauldon Low, and elsewhere in this neighbourhood, and there are marks of lime-kilns formerly on Weaver Hills. Lime is much used here as a manure, being sometimes laid on ploughed ground, and at other times on turf, with very good effect in fining such turf. It has been remarked, that after liming a coarse turf white clover has been produced in abundance, where that plant had not been observed before. The lime-stone here is intermixed with a proportion of gypsum or alabaster.

In a large tract of this country the fences are almost wholly stone walls. This practice I cannot but consider as barbarous. Quickset fences are much cheaper, better, more durable, vastly more beautiful and ornamental, and make the country and climate more temperate; for in winter the quickset affords much better shelter against storms of wind, rain, snow, or hail, to man or beast; and in summer, by its refreshing shade, renders not only more bearable but pleasant that solar heat which, under a stone wall, reflected into a focus as it were from a burning glass, is always insupportable. The fanning breeze, the gentle zephyr, and those other pretty fancies of the poets, are unknown, and because never felt would never have been conceived here. I hope the owners and occupiers of land will have so much regard for

their own intereſt and the ſymmetry and beauty of their country, as by degrees to do away this invention of barbarous ages, and a violence to nature, by planting quickſets, to which the ſtone walls would be a fence and ſhelter on one ſide. With the quickſet ſhould be planted in corners and proper places clumps of trees, and in the fences a few oak, elm, witch-elm, ſycamore, and other foreſt trees, but not aſh, which ſhould be in the clumps: theſe both afford ſhelter to cattle and ornament the country, as well as turn to the great advantage of the proprietor. When the quickſet fences ſhall have been reared, the lime-ſtone walls burnt may turn to good account as manure, and the grit-ſtone will be ready to repair the roads. This improvement, and ſome others before named, which I cannot but ſtrongly recommend, once completed, poſterity will wonder why the country was called Moorlands.

The Moorlands, in point of elevation, are far above anything we have in the ſouth part of the county, riſing perhaps at leaſt from 100 to 200 yards perpendicular above the general level of that country, hill above hill and plain above plain, on which heights large tracts of incloſed paſturage are ſituated. This elevation greatly increaſes the degree of cold, by combining the different cauſes that produce it, and by being more expoſed to the elements of air and water in every form and variety of wind, hail, ſnow, or rain. The air here, conſiderably more rarified, is leſs capable of retaining the ſolar rays; the country is almoſt in a ſtate of nature; it has no cloathing nor ſhelter except the ſtone walls, which have no effect whatever againſt the cold. Such a ſyſtem of incloſure is completely barbarous. Plants, as well as animals, in this climate require ſhelter and cloathing, or muſt be ſtarved and limited in their growth. I am firmly perſuaded that the calcareous part of the Moorlands, after

quickſet.

quickſet incloſures, and a ſufficient number of plantations on the precipices and ſummits, ſhall have acquired ſome maturity, may be improved into one of the fineſt tracts of land in the county. The calcareous part of the Moorlands, or that on a lime-ſtone bottom, is pretty extenſive, reaching in length from the Weaver Hills to Longnor, and in breadth from the Dove to Morredge, including fifteen or ſixteen pariſhes and fifty or ſixty ſquare miles. The quantity of lime-ſtone here is inexhauſtible, being in many places in ſtrata of immenſe thickneſs. This is the beſt part of the Moorlands, and the ſoil ſeems to have a natural aptitude for producing a fine herbage of graſs; and to the credit of the people here I muſt obſerve, that their breed of cows of the long-horned kind are generally ſuperior to thoſe in the ſouth of the county, where the land has been longer in an improved ſtate. I attribute this to the plough and to the growth of corn, the chief conſideration in the latter diviſion, while ſtock here has been the principal object. But this general rule, like moſt others, muſt be admitted with ſome exceptions.

Not far from Okeover I obſerved a practice well worthy, perhaps, of imitation in other places, of waſhing young quickſet hedges with lime-water to prevent their being browſed on by cattle.

Cabbages for cattle are planted in the fields near Okeover, and the ground is well prepared. The extent of meadow-land on the Dove is here much narrower than lower down. In a meadow where the water has been ſuffered to ſtagnate too much, a large quantity of the *polygonum amphibium* grows. The plantations at Okeover are flouriſhing with a due proportion of oak. The houſe and offices are neat, pleaſantly ſituated in a paddock of excellent fine turf, commanding a view of the Dove and its banks, with a neat gothic church at the very door. The paddock is well ſtocked.

ſtocked with deer. At Ilam is a pleaſant ſeat, the property of Mr. PORT, but occupied by Mr. CLIVE. The romantic ſituation of this place ſuggeſts the idea of a glen in the Alps. Here two conſiderable rivers, the Hants and Manyſold, burſt from under the lime-ſtone hills, after a ſubterraneous paſſage of ſeveral miles, in ſeparate ſtreams, which has been proved by throwing corks into the ſtreams above. The precipices which ſurround the valley in which Ilam ſtands, are well cloathed with oak and other wood; and the pleaſure-walks from the ſeat on one of theſe precipices are wonderfully romantic and various. Theſe pleaſure-walks reſemble ſhelves, one almoſt perpendicularly above another; by the ſide of which Nature, with ſcarcely any aſſiſtance from Art, has furniſhed a profuſion of flowers of no contemptible appearance; amongſt others, native geraniums of ſorts, particularly the *Robertianum*, alſo the *centaurea ſcabioſa*, and many other ſhowy natives whoſe names, for want of minutes on the ſpot, I have forgot. In a meadow over the water the ramſon (*allium urſinum*), a very ſhowy flower, but no very deſirable paſture plant, flouriſhes in profuſion. The ſubterraneous rivers here are very conſiderable, at leaſt equalling the Dove. In a lime-ſtone grotto, and elſewhere, there are ſeveral ſpecimens of petrified fiſh, ſome of them apparently in the ſpot riveted by nature, others brought from elſewhere: ſome of them of the carp or barbel kind, ſeem to have weighed when alive two or three pounds each. In a grotto here, CONGREVE is ſaid to have compoſed ſome of his plays; and indeed the ſituation is very advantageous for compoſing: the ſhady bower above, the murmuring ſtream below, the recluſe and retired ſituation, without the reach or hearing of noiſy intruders, all conſpire to fix the mind upon its individual object, and enable it to ſend forth an effuſion of its collected powers.

The ſubterraneous rivers, after burſting up here, form two very fine caſcades. From theſe pleaſure-grounds we view a very bold and romantic proſpect of two hills, called Thorp Cloud and Bunſter, on either ſide the Dove: the latter, in Staffordſhire, is an immenſe heap of lime-ſtone, but covered with a light earth, and well ſtocked with rabbits. Between theſe two hills the Dove falls in abrupt caſcades, but is not in any degree ſuperior to the ſubterraneous waters before-named. Here are large quantities of lime-ſtone fallen from the over-hanging precipices. The higheſt ſummit of Bunſter I eſtimate at 300 yards perpendicular above the Dove, and the fall of Dove from hence to Trent 100 yards more. The ſides of theſe immenſe precipices of Bunſter have a ſcattering of wood, which I doubt not might be eaſily increaſed in any deſired proportion. The ſorts are principally maple, elder, hazel, and hawthorn. The remarkable plants on this mountain are ſedums, geraniums, veronica's, hypericums, and a ſavoury ſweet-ſmelling mint; alſo a very rank *galeopſis* in ſome places; alſo on ſome of the ſummits, in great plenty, the mountain ſtichwort, and a very diminutive *galium* amongſt nettles, and a rank moſs. The ridge of this mountain terminates, in ſome places, in a number of conical ſugar-loaf hills of bare lime-ſtone. This hill, though of great elevation, is not nearly equal to the Weaver, nor ſo high as ſome of the Peak hills over the Dove.

To corroborate the juſtice of the idea of planting precipices, I had the pleaſure to find the ſtumps of ſome very large aſhes which have been ſawn down on the declivity of Bunſter, facing Ilam, ſitting on one of which of more than a yard diameter I make this memorandum, May 29, 1794; and I cannot but perſevere upon every occaſion in ſtrongly impreſſing and enforcing this idea, as the dreary aſpect of a great tract of this country is wholly owing to the neglect of

the land-proprietors and occupiers in not raiſing quickſet fences and plantations on the declivities; and it is one of the greateſt abſurdities and neglects in agriculture that this bleak, elevated, and expoſed diviſion ſhould have remained ſo long, and ſhould ſtill continue, in a naked ſtate.

One circumſtance, however, in the farmers management here deſerves commendation. The land is naturally much more adapted to graſs than corn, the better ſorts of graſſes, and many of the trifolium's being produced ſpontaneouſly. To encourage their growth little more is wanted than to extirpate their enemies, the more luxuriant weeds, or the buſhes of furze and heath. Accident, or the diſcernment of the occupiers, has adapted their management to this circumſtance, and the much greater proportion of the land is paſture, ſtocked with cows and long-wooled ſheep: the paſturage would be much improved in many places by pulverization, and by ſowing clovers, trefoils, and hay-ſeeds. This is not in all places practicable, on account of the rocky ſurface, although large tracts incloſed with ſtone walls, but never yet cultivated, might be thus improved. The lime-ſtone under-ſtratum is generally covered with a calcareous loam of different qualities and depths. Where it is dry, friable, and ſufficiently deep, it is rich; and with its ſpontaneous herbage only it is admitted to be good feeding land, but ſolely, as they ſay, for three months in the year. This is accounted for from its naked ſtate and expoſed aſpect. It would undoubtedly give good crops of any grain. The thinner ſoils nearer the rock not having a furrow of ſoil, are good ſheep-walks, and are not ſubject to burn in any ſeaſon. The moiſter and more tenacious loam is the worſt of all, but might be improved by draining; but the ſtone fences do not even admit of ditches.

Mill Dale, near Alſtonefield, is a long, narrow vale or glen, of great depth. The ſides conſiſt of over-hanging precipices of lime-ſtone, eſtimated to be from 100 to 150 yards of perpendicular elevation, and ſo very ſteep, that they can be clambered up but in very few places. The width of this glen, vale, or dale, at the top, ſcarce exceeds the depth of its ſides: it ſeems formed by the burſting or breaking of the hill which compoſes its ſides, occaſioned by a want of ſolidity in its bearing. The vale of Manyfold is ſituated between Wellon and Butterton, where the waters of the river Manyfold are abſorbed by the fiſſures under the lime-ſtone hills, and diſcharged again at Ilam, four miles below. The warmeſt imagination can ſcarcely conceive a ſpot more extravagantly romantic than ſome parts of this vale. Thyrſis's Cavern here is a conſiderable excavation, pretty high up the ſide of a lofty precipice: it has ſomewhat the appearance of the inſide of a Gothic church, and appears to me to be a work of art. Starlings alone are its preſent inhabitants. Near this place, by the road ſide, the upland burnet, *poterium ſanguiſorba*, grows ſpontaneouſly. At Exton, or Ecton, is a very conſiderable mine of copper and lead, the property of his Grace the Duke of Devonshire; and there are other mines of the ſame metals in this diſtrict. The calcareous or lime-ſtone bottom ends at Morredge; and the underſtratum in the tract of country weſt of Leek and of this waſte, is generally ſandy or gravelly clay, or grit-ſtone rock. This part of the country, north of Mole Cop, is the worſt part of the Moorlands and of Staffordſhire, the ſurface of a conſiderable proportion of this land being too uneven for cultivation. Large tracts of waſte land here, though ſo elevated in point of ſituation, are meer high moors and peat moſſes; and of this ſort are a great part of Morredge,

Axedge, the Cloud Heath, High Foreſt, Leek Frith, and Mole Cop, though ranking amongſt the higheſt land in the county. The ſummits of ſome of the hills in this country terminate in huge tremendous cliffs, particularly thoſe called Leek Rocks or Roches, and Ipſtone's ſharp cliffs, which are compoſed of huge piles of rude and rugged rocks in very elevated ſituations; piled rock on rock in a moſt tremendous manner; aſtoniſhing and almoſt terrifying the paſſing traveller with their majeſtic frown. Here ſingle blocks, the ſize of church ſteeples, are heaped together; ſome overhanging the precipice and threatening deſtruction to all approachers, and ſome of prodigious bulk have evidently rolled from the ſummit and broke in pieces. Theſe ſtupendous piles, the work of Nature, are a ſublime lecture on humility to the human mind; ſtrongly marking the frivolity of all its even greateſt exertions, compared with the ſlighteſt touches of that Almighty hand which placed them here; in whoſe preſence all fleſh is as graſs, and the proudeſt productions of the higheſt efforts of human genius, are but as chaff. The ſpeculative mind, in endeavouring to account for their origin or formation by any known laws, agency, or operation of Nature, is loſt in amazement, and led to exclaim with the Egyptian Magicians, "this is the finger of God;" for the moſt ſuperficial obſerver may perceive that it is his work. Leek Rocks or Roches are compoſed of a coarſe ſandy grit rock; thoſe of Ipſtones have for their baſis gravel, or ſand and ſmall pebbles cemented together.

Upon Morredge and Axedge commons large quantities of peat are dug for fuel, and a number of labourers were digging it when I examined this country the beginning of June 1794. The peat moſſes on Morredge were generally three or four feet deep; the ſoil afterwards was a gravelly clay. The peat both here and on Axedge is porous as a

ſpunge, and equally retentive of moiſture; ſo much ſo, that it was now, and I believe always is boggy, notwithſtanding its high ſituation and a dry ſeaſon, and yields ſo much water from preſſure that it furniſhes ſmall lakes in the hollows, rivulets down the declivities, and ſtarves the natural herbage around; ſo that ſcarcely any thing flouriſhes, or indeed grows, on or near theſe ſpots except heath (*erica*), and that ſtarved, whortleberries, the cottony ruſh or graſs (*eriophorum*), *carex's* and ruſhes. I can have no doubt but theſe high bogs may be eaſily drained: the fall is inſtantaneous, the cutting of drains eaſy, and ſtone in any quantity on or near the ſpot. Indeed another great obſtruction to the improvement of theſe lands is the immenſe quantities of ſtone lying on, or of rocks riſing out of, and above the ſurface. This would be ſomewhat leſſened by ſuch draining, as from the huge tremendous cliffs in which the hills above-named, and many others in this neighbourhood, terminate, immenſe fragments of broken ſtones have fallen in every direction. It is evident that theſe rocks in ſome early period have fallen in pieces, either by ſome violent convulſion of Nature, or more probably by an alteration in the earth's center of gravity, from ſome agency under the immediate will of the Almighty Creator. Theſe ſtone cliffs and fragments cover a conſiderable extent of land, particularly about Ipſtones, Wetley Rocks, Leek Roches, to the weſt of Flaſh, High Foreſt, the Cloud Heath, and Mole Cop common, with the waſte north of this laſt, and indeed in many other places. Here the warmeſt or moſt ſanguinary friend to agriculture can expect little more than ſheep walk or plantation; and I cannot but moſt ſtrongly and repeatedly call upon the land proprietors to attempt the latter, in which I have no doubt but a perſevering attention will be crowned with ſuc-

ceſs; and by which ſuch land will be brought to the higheſt ſtate of improvement poſſible.

It is, however, an encouragement to attempt other agricultural improvements in uncouth ſpots, when every attentive obſerver can remark, that ſome ſuch ſpots here, which have been levelled, cultivated, and improved, are now covered with a very good and fine herbage fit for paſture, and ſeem very gratefully to have anſwered or exceeded every expectation that could reaſonably have been formed by thoſe who attempted and executed ſuch improvement. There is in all the Moorland ſoil, whether upon a calcareous or grit bottom, a ſtaple, or a ſomething, which has a tendency to produce paſture; ſo much ſo, that the paſtures here, however thin the ſoil, or near the rock, never or ſcarcely ever burn or parch from drought. This upon the lime-ſtone bottom I ſhould have expected; but upon the grit bottom ſhould ſcarcely have believed, had I not in part ſeen, ſo far as the advance of the ſeaſon, by no means a moiſt one, permits me, and had I not farther been informed from good authority that ſymptoms of drought are here ſcarcely ever obſervable. Perhaps the climate or temperature of the atmoſphere on this high ground, naturally cool, may in ſome degree favour this tendency to ſummer verdure.

Oat bread is eaten very generally in the Moorlands, and none other kept in country-houſes; this, however, I cannot conſider as any criterion of poverty, or of a backward or unimproved ſtate, as I think it equally wholeſome, palateable, and nutritive with wheat bread, and little cheaper even here; for upon enquiry at Leek I found the oatmeal and wheat flour nearly the ſame price. For ſeveral days during my ſtay in this country I eat no other bread from choice, preferring it to wheat bread, and rather wonder it is not more general, and kept in London and elſewhere for ſuch

palates

palates as prefer it. In the remote country villages it is often baked thick, with four leaven, and a proportion of oat-husks: this, even when grown mouldy, is eaten by the natives without murmuring.

South of Mole Cop the country alters, and can no longer be termed Moorlands. Here a regularly inclosed country commences, with all the beauties of quickset inclosure, shelter, and shade. The Potteries are of considerable extent and population, and very much a national object. The Trent and Mersey Canal, which passes through them, has been a very great convenience in the conveyance of heavy articles used in this manufacture; which circumstance, united with the genius, spirit of enterprize, and exertion of the masters and workmen, has happily succeeded in raising this manufacture in a very rapid manner, from small beginnings, to its present importance and national consequence. The great improvements introduced into this manufacture by Mr. WEDGWOOD and others, will be for ever an honour to their memory, and rank them among the benefactors of mankind. The cream-coloured ware has all the neatness and elegance of porcelain; is in very general use, and is wrought into a vast variety of forms for purposes both useful and ornamental. The raw material used in this business being of little or no value, the amount of value of the manufactured article, which is very considerable, and a great addition to the national capital, may be considered as wholly created by the industry of those concerned and employed in this manufacture; by the success of which, Burslem and Hanley Green, from small villages, have rapidly swelled into large market-towns, and are now equal in population to Newcastle and Leek; besides which, the Pottery includes a number of populous villages scattered over this neighbourhood. Mr. WEDGWOOD is no inconsiderable planter. His seat and pleasure-grounds at Etruria are laid out

with

with neatneſs and elegance, and very much ornament the country.

The land here is in general cold, inclining to a ſtiff ſoil, which continues to near Leek, within a mile or two of which its quality improves. From Leek, three or four miles towards Aſhbourn, the land is very barren and rocky; yet about the church at Ipſtones, and from thence to Bellmont, it is much improved, and in many places is good paſture land. Ipſtones ſharp cliffs have been mentioned before; to the ſouth of which is Bellmont, the ſeat of EDWARD SNEYD, Eſq. pleaſantly ſituated on the weſtern declivity of a romantic glen, the ſlopes of which are well covered with oak and other wood, with a brook murmuring through the bottom into the Churnet. Mr. SNEYD's plantations are extenſive, and of all the different ſtages of growth from infancy to maturity, I had the pleaſure of obſerving ſome recent ones upon barren rocky land impracticable to the plough, where the young plants are healthy and promiſing. Had every gentleman who has landed property in the Moorlands improved his eſtate in this way in an equal degree with Mr. SNEYD, I ſhould have had little occaſion to have complained of the "nakedneſs of "the land" in ſo large a portion of this country.

Rare Plants in Mr. SNEYD'S *Woods.*

1. Cow-graſs, or Cow-wheat (*melampyrum ſylvaticum*), recommended by WITHERING as an excellent cow herbage. I found the ſame plant ſince in the woods at Upper Areley, and hedge ſides, Walſall wood, and Brownhills.
2. Yellow pimpernel (*lyſimachia nemorum*).
3. Bearsfoot (*helleborus fœtidus.*)
4. Crimſon graſs vetch (*lathyrus niſſolia.*)
5. Spleenwort, (*aſplenium ſcolopendrium.*)
6. Angelica.

7. Golden ſaxifrage, (*chryſoſplenium alternatifolium*); beſides many other curious plants in common with other places.

Mr. SNEYD informed me that the wintergreen (*pyrola*) is common in the neighbourhood.

Paſſed Trentham, the ſeat of the moſt Noble MARQUIS of STAFFORD. Here the hanging wood with its umbrageous foliage, the verdant lawn with its beautiful ſhady ſpreading trees and clumps, promiſcuouſly, as it were, diſpoſed in infinite variety; the ſpreading ſheets of water with their accompanyments of impervious ſhade, and loſt to the eye by their length and winding behind the ſwelling hill and ſhady copſe; have an effect truly magnificent and worthy of the noble owner: the houſe and offices are correſpondent. This place for the beauties of ſhade, water, and turf, united, has few equals and no ſuperior.

Near Newcaſtle are made large quantities of excellent blue tile, for covering buildings, which on account of their ſuperior quality in duration are ſent to a conſiderable diſtance.

From Talk on the Hill I proceeded through Audley and Balterley to Betley. The country is incloſed with quickſets, well planted, and the timber-trees are of luxuriant and flouriſhing growth. The ſoil in general is a mixt gravelly loam; the underſtratum is various; ſand, gravel, marl, or grit ſtone rock. The ſoil here, being the happy medium between the ſterility of ſand and the harſhneſs of clay, is adapted to either tillage or paſture. The meadow and grazing land is covered with a good herbage, and the corn crops have a promiſing appearance; and upon the whole this Diſtrict may be called a fine country.

Betley was formerly ranked amongſt the market-towns of the county, but has now loſt that honour, its market having declined. It is a neat little town, ornamented by two handſome

ſome ſeats; the one belonging to Mr. TOLLET, and the other to Mr. FLETCHER. There is a road through it from Newcaſtle to Nantwich and Cheſter.

Between Betley and Newcaſtle is a good deal of light land, light enough for turnips, and ſome few ſmall cloſes were under preparation for that vegetable; but I think in too ſmall a proportion. South of the road leading from Betley to Newcaſtle, a ſtronger ſoil, or friable clayey or marly loam, commences and continues with ſome variations to Eccleſhall, and farther; the underſtrata being generally marl or rock, with ſome exceptions, principally on riſing ground, where the ſurface is often lighter, and the underſtrata are ſand, gravel, or ſandy rock. On waſte alſo, or uncultivated ground, as Maer Heath, Aſhley Common, &c. the ſurface is a thin black peat moor, and the underſtrata, eſpecially of the hilly parts, ſand, gravel, or ſandy rock. The herbage is poor, being generally heath, gorſe, whortleberries, *carex's*, and a ſmall proportion in patches of the graſſes. The ſoil mends and approaches more to a friable marl nearer Eccleſhall, where the upland is a rich deep red friable marly loam; excellent for wheat or any other grain. The meadows round the Biſhop's palace are alſo generally rich, though ſome patches have the appearance of being moraſſy, and ſeem to want draining.

The Biſhop's woods in the neighbourhood of Eccleſhall are very extenſive, and well ſtocked with timber and underwood. Since drawing up the accounts of the woodlands and plantations of the county I have received the following information reſpecting them from Mr. HARDING, who I believe has the management of them.

"THE extent of the woods near Eccleſhall, including the "Biſhop's woods and Burntwood, are, I believe, about one "thouſand five hundred acres.

"The ſyſtem of managing them is variable. Some parts of "the Biſhop's woods are cut at fourteen years growth for "crate rods and heads for the potters uſe, others at ſeven years "growth for rods only. The timber trees are moſtly oak, and "left as near an equal diſtance as can be, from forty to eighty "on an acre. The ſoil being very poor in moſt parts of theſe "woods, the oaks are ſlow in growth. This ſoil is in general "of the gravel or grey ſandy kind, and would not be worth "more than eight ſhillings per acre if in cultivation. The "value to the owner is more in their preſent ſtate than if in "cultivation; the employment to the labourer of greater con-"ſequence, being in the winter ſeaſon; and the benefit to the "public much greater; for without a ſupply of wood from theſe "coppices the potters would experience a want of wood for "the purpoſe of making crates to pack their ware in.

"The beſt part of the wood, ſuch as willow, alder, birch, or "aſh that is clear, is made uſe of for the purpoſe of hay rakes, "ſcythe poles, mop ſtails, and other articles for the bruſh-"makers uſe. In the low parts of the woods, where the ſoil is "of a better nature, the underwood will pay fifteen ſhillings "per acre annually, if it is well ſtooled, and attention paid to "planting the ſpaces between the ſtools.

"Aſhley Heath, July 5, 1794. THOMAS HARDING."

Between Eccleſhall and Stafford, about a mile ſouth of the road, is Latford Pool. This Pool, quite neglected, and without being of the leaſt uſe, keeps back the water ſo as to render upwards of one hundred acres of land a perfect moraſs, incapable of producing any uſeful herbage; a large proportion of which moraſſy land is the property of the Chillington family. The draining is, I underſtand, in agitation, and ſhould by no means be neglected, as the land might be converted to uſeful meadow, and in its preſent ſtate is a national loſs.

The water and damaged land are, I underſtand, different properties. This accounts for the neglected ſtate of the land, which the owner has no means of draining without drawing down the Pool. The ſtrong marly upland, with ſome variations, continues from hence ſouthward as far as Blimhill and part of Breewood pariſh. The nature of ſoil in the midland part of the county is explained in the Map.

The ſouthern part of the county having ſome peculiarities, they are attempted to be delineated in the following ſhort remarks made on the particular ſpots, in a tour through that diviſion of the county.

Rowley Regis. This pariſh exhibits a very ſtriking ſingularity, being in itſelf diſtinct from any other diſtrict in the neighbourhood or in the county. It is principally compoſed of an inſulated mountain, ending or finiſhing in various peaks, pikes, or ſummits. The higheſt ſummit, called Turner's hill, is the higheſt ground in the ſouth of Staffordſhire, but much beneath the Moorland hills, or the Wrekin and Clay hills of Shropſhire. The other higheſt points of Rowley mountain are Oakham and Corney hills. This mountain has for its baſis a ſingular ſpecies of quartzoſe ſtone, devoid of any grit quality, called Rowley rag-ſtone; large quantities of which are carried to Birmingham and elſewhere for pavements and repairing roads. It is extremely hard, too much ſo to be hewn by a common tool; the colour is a ruſty blue. This ſtone is totally void of any calcareous quality, but very probably containing a ſmall proportion of iron. This ſtone lies in an infinite number of fragments, and ſome of them of immenſe bulk, both above, upon, and beneath the ſurface. The rock called Rowley hail-ſtone is of this quality, and of great ſize. DOCTOR PLOTT has moſt abſurdly expreſſed a doubt whether this may not have been a production of art. It is evidently the

work of nature. The Rowley ſtone when dug for lies in no ſtrata, but in rude heaps in every direction, generally beneath the ſurface ſoil, but often riſing above it, with innumerable fragments both upon the lands and roads. The hills north of Rowley, near Dudley and Sedgeley, are compoſed of lime-ſtone; whilſt thoſe of Clent, to the ſouth, may be termed a ſtone braſh, or innumerable ſmall fragments of broken rock ſtone, intermixed with a red ſand or ſandy loam: whilſt Rowley, as it were inſulated, differs from both; the ſurface-ſoil a ſtrong marly loam, retentive of moiſture even in its elevated ſituation, and producing a good herbage of graſs. The roads of this pariſh are rocky precipices, and moſt of the heavy carriage done on the backs of horſes.

The *Hills of Clent* are, at and near their ſummits, compoſed of a light ſoil intermixed with ſmall broken fragments of rock. The lower ground is of a better ſtaple, as containing more of a marly or loamy quality. The ſtone braſh quality goes apparently to a great depth, rendering the ſoil porous, and paſſing the rains through quick, which renders this ſoil liable to burn in hot ſummers, except where the moiſture is retained by the marly loam abounding in the ſurface ſoil. A conſiderable part of theſe hills are nothing but ſheep walk, totally unimproved, but covered with a fine turfed herbage, intermixed with little rubbiſh, except here and there a furze or gorze buſh. Theſe hill ſummits are very high ground, nearly equalling thoſe of Rowley; they ſeem for the greateſt part capable of the turnip and barley culture. This part of the county has ſeveral extenſive commons. On one near the Stewponey I examined the herbage, and found it principally heath, fern, ſheeps feſcue, mattgraſs, white galium, and ſheep ſorrel.

Kinver is a light gravelly ſoil, on a grit rock bottom, of various quality, from fertility to ſterility. On Kinver Edge

is an old extenſive military work or encampment, now occupied by ſheep. Kinver is ſtill in an unimproved ſtate; though incloſed and appropriated, but not ſubdivided. Of a conſiderable tract incloſed in this neighbourhood ſome years back, part is improved and part not, but ſome progreſs is making: the ſoil being ſterile, the improvement, to render it fertile, muſt be a work of time. Weſt of Kinver, and ſouth of Enville, the ſoil changes into a ſtrong clayey or marly loam, more or leſs harſh or friable, under which deſcription is included the whole of Over-Areley, and part of Enville and Bobbington. The hills are often rocky, with ſmall fragments upon and near the ſurface, in ſome parts quartzoſe, in others gritty. The ſurface ſoil varies in colour from red to grey, with all the ſhades of colour between. The cultivation the ſame as in other ſtrong ſoils. This pariſh has formerly been famous for fruit, eſpecially apples; but the orchards have been ſuffered to decline, though ſome recent attempts have been making towards reinſtating them, and the ſoil and aſpect are doubtleſs well adapted for the purpoſe.

At Sir EDWARD LITTLETON'S, at Teddeſley Park, I obſerved a practice forgot to be named in its proper order, and in my opinion almoſt peculiar to the place. Although ſeveral hundred acres of land are kept in hand, yet almoſt the whole being kept in turf, little or no grain of any kind is grown; to ſupply therefore the deficiency of ſtraw for litter, large quantities of fern are collected, of which one or more large ſtacks are formed every year; conſiderable breadths of the common being mown for that purpoſe.

PRICE

PRICE OF PROVISIONS AND OTHER LANDED PRODUCE.

THE price of provisions in this county has been in many instances very fluctuating, and their rise and fall seem owing to a combination of different causes; to the plenty or scarcity; import or export: to the plenty or scarcity also of money. Since I have been in the farming business, which is about fifteen years, I have known wheat at all prices, from four shillings to ten shillings and sixpence; barley from two shillings to seven shillings; and oats from one shilling and sixpence to four shillings and sixpence, and this for actual consumption; but it must be observed that our bushel is nine gallons and a half. Butchers meat has varied considerably in that period. Pork or bacon hogs, sinking the offal, have sold from two-pence halfpenny to four-pence halfpenny per pound; cows, calves, and sheep, from three-pence to five-pence halfpenny. The price is at present high, but has by no means been gradually and regularly rising, but very often fluctuating. The price of butchers meat has been generally more steady than that of corn. The following are nearly the present prices.

Wheat, eight shillings and six-pence the bushel.

Barley, last malting season, from five shillings and sixpence to six shillings and sixpence, but expected to be much cheaper the ensuing.

Oats, at present three shillings and sixpence to four shillings. The bushel for all grain here, except malt, contains nine gallons and a half.

Beef and mutton, three-pence halfpenny to four-pence half-

penny per pound, from Midſummer to Chriſtmas; and four-pence to five-pence from Chriſtmas to Midſummer.

Lamb, four-pence to eight-pence.

Veal, three-pence to five-pence per pound.

Dry bacon, ſix-pence to ſeven-pence whole ſides, and one penny more by retail.

Pork, in winter four-pence to five-pence: none ſold in ſummer.

Cheeſe, forty ſhillings to forty-five ſhillings per hundred, of one hundred and twenty pounds; and four-pence halfpenny to five-pence per pound by retail.

Butter, ten-pence to one ſhilling per pound, of eighteen ounces.

		s.		s.	d.
Oak-timber, per foot		1	to	2	6
Aſh	ditto	9	to	1	6
Elm	ditto	9	to	1	6

The other ſorts, as beech, ſycamore, poplar, and the different ſorts of fir, according to quality and demand, plenty, ſcarcity, and other local circumſtances of time and place; varying from eight-pence or nine-pence to one ſhilling and ſix-pence, or two ſhillings per foot.

WEIGHTS AND MEASURES.

THE cuſtomary weights and meaſures of this country differ conſiderably from the regular ſtandard; the cuſtom of Wolverhampton market being eighteen ounces to the pound of butter; one hundred and twenty pounds to the hundred of cheeſe; nine gallons and a half to the buſhel of barley, oats, beans,

beans, and peaſe; and ſeventy-two pounds to the buſhel of wheat: whilſt that of other markets in the county varies, ſome being more and ſome leſs. Malt is generally, through the county, ſold by the Wincheſter buſhel of eight gallons, and wheat-flour by the ſtone of fourteen pounds. Much complaint has been made of this variation, and much has been ſaid about a regulation of weights and meaſures, and obliging every perſon to ſell by the ſtatute or ſtandard weight or meaſure; but I cannot think it a matter of much importance, particularly in the wholeſale way: for in every contract of any magnitude, the parties will always underſtand each other. And although malt may be ſold out by a leſs meaſure than barley may have been bought in, yet the competition between different maltſters will render juſtice to the conſumer. In caſes of retail, let the magiſtrate do his duty, by protecting the poor from fraud: the wholeſale dealer needs not his protection, he will take care of himſelf: and the public are beſt ſerved by a competition between different dealers; who, the more numerous they are, the leſs danger will ariſe to the public of monopoly or combination.

A LIST OF PLANTS, TREES, OR SHRUBS, NATIVES OF THIS COUNTY, REMARKABLE FOR BEAUTY OR USE, OR FOR THEIR MEDICINAL, POISONOUS, OR OTHER SINGULAR QUALITIES. THE DIETETIC, OR AGRICULTURAL PLANTS HAVING BEEN MOSTLY NOTICED BEFORE.

1. PRIVET (*liguſtrum vulgaris*); common in hedges on this farm; makes an excellent garden-fence, when cropped.

2. Brook

2. Brook lime (*veronica beccabunga*); a wholesome, but pungent spring sallad: common in streams.

3. Valerian (*valeriana officinalis*); common in moist ground.

4. Flag (*iris pseud-acorus*); in moist situations.

5. Reed (*arundo phragmites*); in rivers, ponds, and lakes, common.

6. Wild teasel (*dipsacus sylvestris*); near Tamworth, common.

7. Dog-wood (*cornus sanguinea*); in hedges common.

8. Scorpion-grass (*myosotis scorpioides*); hedges and fields, very common.

9. Viper-grass (*echium vulgaris*); a showy flower, very common.

10. Buckbean (*menyanthes nympheides & trifoliata*); in pits common: a beautiful flower; the leaves of the latter extremely bitter, and two ounces said to supply the place of a pound of hops.

11. Feather-foil (*hottonia palustris*); in watery places between Lichfield and Barton by the road-side; a beautiful flower.

12. Pimpernel (*anagallis arvensis*); corn-fields, common.

13. Bell-flower (*campanula*); hedge-sides.

14. Honey-suckle (*lonicera periclymenum*); hedges, common.

15. Mullein (*verbascums*), several sorts; hedge-sides.

16. Henbane (*hyoscyamus niger*); amongst rubbish and road-sides.

17. Dwale, or deadly night-shade (*atropa belladonna*); amongst the lime-works of Sedgeley and Dudley, very common: one of our most poisonous plants.

18. Woody night-shade (*solanum dulcamara*); in pits and hedges.

19. Centory

19. Centory (*chironia centaurium*); extremely bitter; in paſtures.

20. Buckthorn (*rhamnus catharticus*); in hedges.

21. Smooth buckthorn (*rhamnus frangula*); in hedges on this farm.

22. Gooſeberry (*ribes groſſularia*). Mr. SNEYD of Belmont, near Leek, has diſcovered this ſhrub in the Moorlands of the *dioica* kind; that is, unfertile, unleſs male and female plants grow near each other; of which he ſhowed me ſpecimens tranſplanted into his garden.

23. Periwinkle (*vinca minor*); in hedges; alſo the (*vinca major*).

24. Engliſh mercury (*chenopodium bonus Henricus*); on road-ſides: a good dietetic plant, worthy of cultivation, little inferior to ſpinach.

25. White, green, and maple-leaved gooſefoot (*chenopodiums alba, viride, & hybridum*); common garden weeds.

26. Sanicle (*ſanicula Europæa*); hedge-ſides, near Betley, and elſewhere: ſlightly bitter, aromatic, and aſtringent.

27. Pignut (*bunium flexuoſum*); paſtures, orchards, &c. The roots would be an agreeable addition to our winter deſſerts. (WITHERING).

28. Hemlock (*conium maculatum*); in hedges common: a plant of active poiſonous qualities.

29. Angelica (*angelica ſylveſtris*); in moiſt woods and hedges, common; warm, acrid, bitter, and aromatic. (WITHERING).

30. Water parſnip (*ſcium anguſtifolium*); common in ſtreams: a plant of active properties, that ought to be inquired into. (WITHERING).

31. Fools parſley, or leſſer hemlock (*aethuſa cynapium*); common in gardens, and much reſembling parſley, for which

it is sometimes mistaken: "when eaten it occasions sickness." (WITHERING).

32. Wild chervil (*chærophyllum temulum*); common in hedges.

33. Ground ash (*ægopodium podagraria*); in some hedges and orchards in great abundance: the leaves may be eaten early in the spring as a pot-herb.

34. Marsh-elder (*viburnum opulus*); a handsome shrub; common in hedges. The gueldder-rose is a variety of it.

35. White-berried elder (*sambucus fructu-alba*); at Combridge, near Rocester; also near the farm-house occupied by Mr. HORDERN, Essington, near Wolverhampton.

36. Purging flax (*linum catharticum*); in pastures on this farm: an infusion of two drams or more of the dried plant is an excellent purge. (WITHERING).

37. Snow-drop (*galanthus nivalis*); in orchards; a beautiful early flower, of welcome appearance, as foretelling the approach of spring.——Fair maids of February. (WITHERING).

38. English hyacinth or harebell (*hyacinthus non scriptus*); hedges very common: the fresh roots are poisonous, and may be converted into starch. (WITHERING).

39. Myrtle flag (*acorus calamus*); banks of rivers, near the river at Tamworth, at the bottom of Mr. OLDERSHAW's garden: the root powdered might supply the place of our foreign spices; it is our only native true aromatic plant. (LINNÆUS).

40. Barberry (*berberris vulgaris*); in hedges. This shrub is said to have the quality of blighting the ears of wheat, even to the distance of three or four hundred yards across a field. The leaves and berries are gratefully acid.

41. Water plantain (*alisma plantago*); growing in water; common.

42. Willow

42. Willow herbs (*epilobium hirsutum & angustifolium*); a beautiful showy flower, growing in hedges and moist ditches on this farm and elsewhere.

43. Knot-grass (*polygonum aviculare*); road-sides, paths, and corn-fields, common. This plant and several others of the same species are very productive in seeds, which seem peculiarly the food of small birds, and intended by a bountiful Providence as a principal article in the support of that beautiful part of the animated creation.

44. Herb Paris (*paris quadrifolia*); hedge-side, in a meadow on this farm in plenty. The roots will vomit as well as ipecacuanha, but must be given in a double quantity. (LINNÆUS in WITHERING).

45. Moschatel (*adoxa moschatellina*); ditch banks on this farm, very early in the spring.

46. Stitch wort (*stellaria holostæa*); hedge-sides, early in the spring.

47. Stone crops (*sedums telephium & acre*); even the former growing on roofs in the Moorlands, particularly at Wetton; the latter on mountains in the Moorlands, and roofs elsewhere.

48. Wood sorrel (*oxalis acetosella*); woods and hedge-banks: the juice is gratefully acid, and a conserve is made from it.

49. Lychnis's of sorts, particularly the (*lychnis flos cuculi*) or cuckow flower, a ragged red flower in meadows; and the red and white wild campion in hedges (*lychnis dioica*).

50. Spurry (*spergula arvensis & nodosa*); common on this farm on some poor arable land when in tillage; very prolific in seeds, which are eaten by small birds.

51. Agrimony (*agrimonia eupatoria*); hedge-sides common.

52. Dyer's weed (*reſeda luteola*); in the lime-works at Dudley, and at Hayhead in plenty. This plant is uſed in dyeing.

53. Spurges (*euphorbias exigua & helioſcopa*), devil's milk; in gardens and corn-fields common.

54. Houſe-leek (*ſempervivum tectorum*); on rooſs and old walls.

55. Prunus's, the bird-cherry (*prunus padus*), is a beautiful flowering ſhrub, growing in a hedge on this farm; alſo on Buſhbury-Hall farm, about Shelford near Walſall, and in the Moorlands: the ſloe and bullace (*prunus ſpinoſa & inſititia*) are very common in hedges.

56. Hawthorn. The common white hawthorn is well known every-where; but the wild ſervice (*cratægus terminalis*) is a rare ſhrub, worthy a place in pleaſure-grounds: it grows ſpontaneouſly in a hedge upon this farm.

57. Crab-tree (*pyrus malus*); in hedges. The acid juice, called verjuice, is a good aſtringent or repellent, and uſed in ſtrains. With a proper addition of ſugar a grateful liquor may be made of it, little inferior to old hock. (WITHERING).

58. Roſe, ſweet briar (*roſa rubiginoſa*), and dog-roſe (*roſa canina*); in hedges: the leaves are a good ſubſtitute for tea.

59. Bramble, including the raſpberry (*rubus idæus*), and the blackberry (*rubus fruticoſus*); in hedges and woods.

60. Strawberry (*fragaria*); in hedge-banks and woods. Mr. SNEYD of Belmont, has a ſpecies of ſtrawberry, which he is certain is a *dioica* plant; that is, unfertile without both male and female plants; but, I believe, not a native.

61. Herb bennet (*geum urbanum*); woods and hedges.

62. Celandine (*chelidonium majus*); in hedges. The juice is very acrimonious, and will cure warts and the itch. (WITHERING).

63. Water lilly (*nymphæa lutea & alba*); in rivers.

64. Bugle

64. Bugle (*ajuga reptans*); in paſtures: the roots are aſtringent.

65. Wood ſage (*teucrium ſcorodonia*); ditch-banks and thickets.

66. Betony (*betonica officinalis*); woods and ſhady places.

67. Woundwort (*ſtachys ſylvatica*); in hedges.

68. Wild thyme (*thymus ſerpyllum*); heaths and road-ſides, in the ſouth part of the county.

69. Snapdragons (*antirrhinums majus & linaria*); the former a beautiful flower, abounding on the walls of Ruſhall Caſtle, near Walſall; the latter common in hedges, called toad-flax. WITHERING ſays of the latter, an infuſion of the leaves is diuretic and purgative: the expreſſed juice mixed with milk is a poiſon to flies.

70. Figworts (*ſcrophularia aquatica & nodoſa*); moiſt places. WITHERING ſays, ſwine that have the ſcab are cured by waſhing with a decoction of the leaves.

71. Fox-glove (*digitalis purpurea*); a ſhowy plant; very common.

72. Whitlow-graſs (*draba verna*); walls and dry paſtures: a diminutive plant, very early in the ſpring in flower.

73. Water-creſs (*ſiſymbrium naſturtium*); ſprings and rivulets: an early and wholeſome ſpring ſallad; antiſcorbutic and ſtomachic.

74. Hedge-muſtards (*eriſymums officinale & alliaria*).

75. Gilliflower (*cheiranthus chiri*); on old walls.

76. Geraniums, various ſorts in paſtures.

77. Mallow (*malva ſylveſtris*); road-ſides and hedges.

78. Tree mallow (*lavatera arborea*); road-ſides.

79. Dyer's broom (*geniſta tinctoria*); in ſome paſtures.

80. Creeping reſtharrow (*ononis repens*); road-ſide near Himley: the other reſtharrow was named before.

81. Melilot (*trifolium melilotis officinalis*). This plant is not

very common in this county, but I have ſeen ſpecimens of it, particularly in Stafford Field, and between there and Eccleſhall. I have ſometimes wondered that it has been taken ſo little notice of as an agricultural plant, being the moſt luxuriant of all our treſoils, and the moſt tenacious of growth. Horſes are extremely fond of it (this I have often remarked). Cows, ſheep, and ſwine eat it. LINNÆUS calls it an annual plant, HUDSON a biennial, and BERKENHOUT a perennial. In ſome parts of the counties of Rutland and Bedford, particularly the former, it is ſo abundant amongſt wheat, and other grain, that I have been aſſured on the ſpot, the drawing it out as a weed, has frequently coſt five or ſix ſhillings per acre. Hence I ſhould ſuppoſe it a perennial. This circumſtance may perhaps be a ſufficient warning againſt introducing it upon arable land: yet a plant ſo tenacious of growth, and acceptable to cattle, may poſſibly be a good addition to our meadow and paſture herbage.

82. St. John's wort (*hypericums*); a beautiful flower; hedges.

83. Hemp-weed (*eupatorium cannabinum*); in moiſt ditches.

84. Tanſey (*tanacetum vulgaris*); road-ſides and banks of rivers.

85. Wormwood (*artemiſia*); road-ſides and rocky places.

86. Feverfew (*matricaria parthemium*); hedges and walls.

87. Chamomile (*anthemis nobilis*); on old trodden turf.

88. Violet (*viola odorata*); ditch-banks.

89. Panſy (*viola tricolor*); in corn-fields.

90. Cows and calves (*arum maculatum*); ditch-banks.

91. Cat's-tail (*typha latifolia*); ponds and rivers.

92. Burweed (*ſparganium erectum*); ditches and moiſt ground.

93. Hop

93. Hop (*humulus lupulus*); hedges at Whittington and elſewhere.

94. Black bryony (*tamus communis*); hedges and thickets.

95. Common bryony, wild vine (*bryonia dioica*); hedges near Lichfield.

96. Croſs wort (*valantia cruciata*); baulks by hedge-ſides.

97. Pellitory of the wall (*parietaria officinalis*); on old walls, on the gateway leading to Lichfield minſter.

98. Burdock (*arctium lappa*); road-ſides and rubbiſh.

99. Clubb-moſs (*lycopodium clavatum*); on Cannock Heath.

100. Stinking morel, or polecat (*phallus impudicus*); in thickets.

The above are our moſt remarkable native plants, ſo far as comes under my obſervation; beſides thoſe mentioned before as agricultural plants or weeds: many of the more common and well-known ones are omitted, and perhaps ſome worthy of notice may have been overlooked.

STAFFORDSHIRE COMMERCIAL ACCOUNT: OR, A SKETCH OF THE COMMERCIAL STATE OF THE COUNTY OF STAFFORD, UNDER THE FOLLOWING HEADS: 1. MANUFACTURES. 2. MINES. 3. CONVENIENCES FOR CONVEYANCE UPON CANALS AND ROADS.

1. MANUFACTURES. The manufactures of Staffordſhire are very conſiderable, and comprehend a variety of articles,

articles, particularly hardware, nails, toys, japanned goods, and potter's ware; alſo productions in cotton, ſilk, leather, woollen, linen, and many other articles.

The manufacture of hardware is carried on in the ſouth part of the county to a great extent; and Wolverhampton, and its neighbouring populous villages, produce locks of every kind, and of the very beſt quality: and this may be termed the ſtaple manufacture of this town. Buckles are alſo manufactured here, and a great number of hands employed upon that article. In ſome particulars of ſteel-toys, eſpecially watch-chains, they have long been famous for exceeding every other place, and ſtill ſtand unrivalled: but this manufacture in particular, and the others in general, have ſuffered much by the war, orders having been wanting and remittances precarious. The manufacture of edge-tools, files, augers, and japanned goods here is conſiderably extenſive, as well as that of a great many other articles.

The ſtaple manufacture of Walſall may be ſaid to be ſhoe-buckles and chapes, in which a great number of hands are employed, and ſome good fortunes have been made. Alſo this town and neighbourhood, particularly Bloxwich, is famous for the manufacture of ſaddlers ironmongery, ſuch as bridle-bits, ſtirrups, ſpurs, &c. Theſe are ſold to the ſaddlers ironmongers at Walſall, and form the baſis of a conſiderable traffic, carried on to great advantage, and by them circulated to every part of the kingdom, as I have been informed by Mr. CURTIS of Walſall.

The manufacture of nails in Staffordſhire is very extenſive, employing many thouſands of hands in ſome of the moſt populous country pariſhes, particularly Sedgeley, Rowley, Weſtbromwick, Smethwich, Wombourne, Pelſall, the Foreign of Walſall, and many other places. A great number of women and children, as well as men, are employed in making

making the finer and lighter ſorts, which they do equally well. The manufactures of Mr. BOLTON at Handſworth are in this county, and very conſiderable, employing many hundreds of hands, chiefly, I believe, in various kinds of toys, and in the machinery for ſteam engines. Bilſtone furniſhes a variety of plated, lackered, japanned, and even enamelled goods. Wedneſbury, I believe, does ſomething in the gun trade. Tobacco and ſnuff-boxes of iron or ſteel, and finiſhed in various ways, are got up at Darlaſton, Willenhall, and in their neighbourhood. Moſt of theſe manufactures have ſuffered more or leſs by the war; though I underſtand, the trades of nails and ſadlers ironmongery are pretty good; buckles and locks indifferent; and the ſteel-toy trade almoſt annihilated. Theſe manufactures ſuffered a ſimilar, or perhaps greater depreſſion in the American war; but were extremely and uniformly flouriſhing during the peace, from the concluſion of the American war to the commencement of the preſent. This is a ſufficient proof that their flouriſhing ſtate is conſiſtent only with a ſtate of peace.

The manufacture of potter's ware in the north of the county is very extenſive and important, the value of the manufactured article being, as it were, a creation of the manufacturer, from a raw material of no value.

The Potteries conſiſt of a number of ſcattered villages, occupying an extent of about ten miles; and may contain about twenty thouſand inhabitants, including thoſe who depend upon them for employment and ſubſiſtence. They have not been ſo flouriſhing ſince the war.

Stafford, the county town, has a very conſiderable manufacture of ſhoes, both for home conſumption and exportation; and the tanning and other different branches of the leather trade, and alſo the manufacture of hats, are carried on upon a large ſcale in many other towns in the county.

The cotton manufactures of this county are not inconsiderable: those of Mr. ARKWRIGHT at Rocester, and elsewhere near the Dove, are upon a large scale, and employ a great number of hands; and those of Messrs. PEELE and WILKES, at Fazely and Tamworth, are very considerable; besides which there are extensive cotton works at Burton and Tutbury. This manufacture has a great tendency to promote our national industry, by finding employment suitable to both sexes in early youth, and thus initiating them in early habits of industry. The country is much obliged to those gentlemen by whose exertions and perseverance this manufacture has been introduced and established.

Leek has a considerable manufacture in the silk and mohair way; the manufactured goods from which are, sewing-silks, twist, buttons, ribbons, silk-ferrets, shawls and silk-handkerchiefs. In these manufactures, as by information from Messrs. SLEIGH and ALSOP, and PHILIPS and FORD, manufacturers, and others, are employed about two thousand inhabitants of the town, and one thousand of the adjacent country. In this trade some good fortunes have been made, and it has been very flourishing; but the check on paper credit, which in a great measure hurt the confidence of all connections, diminished the trade here: and the war must in some degree have damped the demand for it abroad: yet the trade is now in a flourishing state, and considerably better than it was some months ago.

Cheadle and Teyn have a considerable manufacture of tape, which finds employment for the industry of its inhabitants.

The woollen manufactory within this county is not very considerable, and a large proportion of the raw wool grown therein is sold into the cloathing and stocking countries; yet there are wool-combers in most of the towns, and some which push a considerable business; and a good deal of woollen cloth

is got up in the country by private families, though in less quantity than formerly.

There is no considerable public manufacture of linen, but a good deal of hurden, hempen, and flaxen cloth got up in private families; a great many people resident in the country being now, and having long been, in the habit of growing a patch of hemp and flax, which is generally manufactured within the county.

Of the population of Staffordshire, I suppose one third are supported by agricultural or other professions or employments thereon depending, and two thirds by manufactures, commerce, and mines.

With respect to the effects of extensive manufactures on agriculture, I believe there can exist but one rational opinion, and which must be, that those effects are of the most advantageous kind, and that in every instance the value of landed property will most rapidly rise, as the demand for and facility of disposing of its products is increased; and with this opinion agrees every remark I have received upon the 28th Query proposed by the BOARD, and which refers to this particular subject. The only inconveniences that can possibly be complained of are, first, an advance in the price of labour, which is always highest in manufacturing countries; and, secondly, an increase in poor's rates, which must always be highest in populous countries. These inconveniences are abundantly compensated for by an increasing consumption of landed produce, and a brisk demand for such produce at market.

MINES. The mines of this county are valuable and extensive, and in some articles may fairly be pronounced inexhaustible. The coal land of Staffordshire, which has been proved such, and where the existence of that mineral near enough the surface to be easily raised, has been ascer-

tained, contains a ſpace of about 50,000 acres: of this ſpace the quantity exhauſted by conſumption, from the earlieſt times to the preſent day, does not exceed a tenth of the whole; and though the ſcarcity and advance in price of this article have been complained of, the ſcarcity of it has been owing to local cauſes; and the advance in price has perhaps been no more than a juſt proportion to the advance in the price of labour, and the machinery neceſſary in the trade. In the ſouth of the county the coal country extends in length from Cannock Heath (including a part of that waſte) to near Stourbridge, and in breadth from Wolverhampton to Walſall. In the north of the county, the neighbourhood of Newcaſtle and the Potteries, Lane-End, Holly-Buſh, and again in the neighbourhood of Cheadle. The country producing lime-ſtone is ſtill more extenſive; at Sedgley and Dudley Caſtle Hills, Ruſhall and Hayhead, but above all on the north-eaſt moorlands and banks of the upper parts of the Dove, where the greateſt conſumption or length of time could ſcarce apparently leſſen the immenſe quantity. In this latter diſtrict are ſome veins of alabaſter, which is alſo dug between Needwood Foreſt and Tutbury. Of freeſtone here are very good and extenſive quarries. Bilſtone affords a freeſtone of very fine grit, fit either for mouldings, building, or grindſtones of the finer ſort, for which laſt purpoſe it is excellently adapted. Gornal, near Sedgeley, has alſo plentiful quarries of a coarſer and cheaper freeſtone, uſed for the ſame purpoſes as that of Bilſtone. Tixall produces an excellent and durable building freeſtone, which is eaſily raiſed in blocks of almoſt any dimenſion; and the ſame article is again found at Wrotteſley, Breewood-Park, Pendeford, and a great many other places in the county.

Iron. The ſtrata of iron ore in the neighbourhood of Wedneſbury, Tipton, Bilſtone, part of the pariſh of Sedge-

ley, and other parts of the coal country, are very extenſive. Theſe ſtrata generally lay under a ſtratum of coal, and have occaſioned ſome very conſiderable iron-works to be lately eſtabliſhed on the banks of the Birmingham Canal, where the iron trade is very much increaſing; and it is to be hoped the capital ſpirit of enterprize and exertion of our iron-maſters will, in time, produce this neceſſary article in ſufficient quantity to preclude the neceſſity of an importation from abroad; or at leaſt to leſſen the quantity of ſuch importation, the balance of trade in which, is very much againſt this country.

In theſe mines of coal, lime, and iron, and in the founderies, blaſt-furnaces, ſlitting-mills, and other branches of the iron trade, great numbers of workmen are employed, and the extenſion of the iron-trade in particular is of great conſequence to the intereſts of this kingdom. The extent of the iron trade in all its varieties, wrought and unwrought, for agricultural and other internal purpoſes, and for home conſumption and exportation, under its innumerable ſhapes and forms, is now ſo very great, as to rival even that of the great ſtaple, wool; and to make the ſuperiority of the latter ſomewhat queſtionable; and from the abundance of iron ore and fuel with which this country abounds, the trade, particularly ſo far as relates to the production of the metal, is capable of being much extended; and there can be little doubt of the poſſibility that this country will wholly ſupply itſelf with that article.

The other minerals of the county are principally thoſe of copper and lead, of both which conſiderable quantities are raiſed at Ecton, near Warlow, upon the eſtate of his Grace the DUKE OF DEVONSHIRE. Alſo a copper mine is worked at Mixon, within a few miles of Leek, and a lead mine near Stanton-Moor. And there are ſeveral braſs

works

works in this part of the county, particularly at Whiston, Oak-Moor, and in the neighbourhood of Cheadle; and at Shirleywich, near Ingestree, is a considerable salt-work.

CANALS. Respecting the conveniences for conveyance of heavy articles, perhaps no county in England, or even country in the universe of equal extent, is better accommodated with artificial canals. I have marked the length upon the map of the county herewith sent, of those now in hand, as well as those which have been wholly executed nearly within the last 30 years. These lands extend about 200 miles. Two or three good projects of the same kind also might still be marked out within the county. They much facilitate the conveyance of bulky and weighty articles, such as coal, limestone, and lime, iron in the ore or metal, and considerably reduce the expence of carriage. The trade in those articles has consequently been extended in a very considerable degree, and the population of the neighbourhood where those articles are produced has increased. The Writer of this is of opinion, that the very rapid extension, not only of Birmingham for the last twenty years previous to the present war, but also of the Potteries, was much promoted by canal conveyance. Similar instances are to be found elsewhere: at Tipton-Green, now a populous town, on the banks of the Birmingham Canal, at Mr. WILKINSON's extensive works at Bradley near Bilston, as well as at the works before named in a general way, and at many others. Thus these canals have been a means of considerably increasing population, by enabling the proprietors of mines of iron, coal, and lime, to extend their works, and by that means employ more people both in raising, manufacturing, and transporting the different articles. These canals cost in execution 500,000l. and upon the average pay 10 per cent. per annum to the proprietors; they consequently add half a

million

million to the national capital, and 50,000l. per annum to its income, and are certainly a great national improvement and accommodation to a trading country.

ROADS. The roads of this county have been very much improved within the laſt forty years, by the introduction of toll-gates upon moſt of the public thoroughfares, and which, though a cauſe of much clamour at their firſt introduction, have been the means of much improving ſuch roads; and no one now thinks any-thing of the expence of paying toll when he conſiders the advantage he enjoys in point of eaſe, ſafety, and expedition, in travelling or conveying goods or other articles. Many of the private roads are ſtill in an indifferent ſtate; and though they might be much improved by attention in the reſpective ſurveyors, and obliging the liberties to perform their ſtatute duty, there ſeems in general a want of ſufficient energy to effect this; and perhaps in roads much uſed, and where materials for their repair are at a diſtance, their complete repair might lay too heavy on their reſpective liberties, and their reparation by a tax collected at a toll-gate upon all travellers may be the moſt equitable way. Next to the improvement by a canal, a country is moſt improved by good roads; and in compariſon to the different accommodation between a good and bad one, the expence of an equitable gate-toll is a very trifling object.

I ſhall conclude this report with juſt remarking the annual poor's rate expenditure of this county, from the Parliamentary inquiries made in conſequence of Mr. GILBERT's attempts at reforming our code of poor laws. They were then as follows:

Staf-

Staffordshire poor's rate, &c. annual expences from Parliamentary inquiries, 1783, 1784, and 1785.

	£.	s.	d.
Whole county annual expence upon a medium of those three years -	45,404	10	10
Of this, net money paid for the poor -	40,963	13	7
County rates, including gaols, houses of correction, county bridges, militia, vagrants, &c. - - -	3261	5	4
Churchwardens accounts for reparation of churches, &c. - - -	1,179	11	11
Total	45,404	10	10

A curious circumstance I remarked in some of the parishes of this county where the population is pretty well ascertained; which is, that five times the annual poor's rate expenditure in pounds, equals the population; or, that the annual poor's rate expenditure is four shillings per head upon the whole mass of inhabitants. In other places, however, the population was considerably more, than the number thus produced.

The Writer of this Report had intended to have gone in some measure into the political arithmetic of the county, such as rentals, net value of land, amount of capitals employed in trade and agriculture respectively, and had collected some data on which to found such calculations; but, upon reconsideration, conceiving it might not be very agreeable to some persons interested, for such particulars to be exposed to public view, he has declined it, and believes it improper, unless similar particulars were impartially brought forward of all the other counties.

Aug. 12, 1794. *W. PITT.*

GENERAL VIEW

OF THE

AGRICULTURE

OF THE COUNTY OF

NORTHAMPTON,

WITH

OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.

Gt Brit.

DRAWN UP FOR THE CONSIDERATION OF

The Board of Agriculture and Internal Improvement.

TO WHICH IS ADDED,

An APPENDIX, containing a Comparison between the ENGLISH and SCOTCH Systems of Husbandry, as practised in the Counties of Northampton and Perth.

BY JAMES DONALDSON,
DUNDEE.

EDINBURGH:
PRINTED BY ADAM NEILL AND COMPANY.

M DCC XCIV.

ADVERTISEMENT.

THE following valuable communications, respecting th
sent state of husbandry in the county of Northampton, a
means of its improvement, drawn up for the consideration
Board of Agriculture, is now printed, merely for the purp
its being circulated there, in order that every person, inte
in the welfare of that county, may have it in his power t
mine it fully before it is published. It is therefore requ
that any remark, or additional observation, which may oc
the reader, on the perusal of the following sheets, may be
mitted to the Board of Agriculture, at its office in Londo
whom the same shall be properly attended to; and, whe
returns are completed, an account will be drawn up of th
of agriculture in Northampton-shire, from the informatio
accumulated, which, it is believed, will be found greatly
rior to any thing of the kind ever yet made public.

The Board has followed the same plan, in regard to a
other counties in the united kingdom; and, it is hardly
sary to add, will be happy to give every assistance in its p
to any person who may be desirous of improving his bre
cattle, sheep, &c. or of trying any useful experiment i

INTRODUCTION.

NORTHAMPTONSHIRE is an inland county, ſituated within the 53d degree of north latitude, and near the centre of England. It is bounded on the eaſt, by the counties of Cambridge and Huntingdon; on the ſouth, by Buckingham and Bedford; on the weſt, by Warwick and Oxford; and on the north, by Leiceſter, Rutland, and Lincoln.

This county is of an oblong form; its greateſt length from the ſouth-weſt corner near Aynhos, to the north-eaſt boundary at Crowland, is 65 miles; its greateſt breadth from Higham Park on the eaſt, to Stanford on the weſt, is 32 miles; but its mean breadth may be reckoned at 14 miles, making a ſquare ſuperficies of 910 miles, or 582,400 acres.

Surface.—The ſurface of this county is as peculiarly advantageous for cultivation, as it is delightful and ornamental. In no other part of the kingdom, perhaps, are more agreeable and extenſive landſcapes to be ſeen. Here, there are no dreary waſtes, nor rugged and unſightly mountains, to offend the eye, or to intercept the view. The ſurface is no where ſo irregular, but it can be applied to every purpoſe of huſbandry and tillage. Every hill is cultivated, or may be kept in a profitable ſtate of paſturage, and every inequality in the ſurface contributes to its ornament and beauty.

The upper and middle parts of this county are richly ornamented with extenſive woods, which are interſected with numerous viſtas and beautiful

lawns. The various avenues of trees, extending in many parts for miles together, the rivers and ſtreams winding along the vales, and anſwering the neceſſary purpoſes of machinery, agriculture and trade,—the many beautiful villages and populous towns, with their churches and lofty ſpires, (20 of which may be ſeen at a time), when viewed from an eminence, preſent a proſpect beautifully diverſified, and highly pictureſque, and which cannot fail to delight the eye, and enliven the heart of every ſpectator.

Soil.—There is great variety in the ſoil of this diſtrict, and ſeveral very diſtinct kinds are found in almoſt every pariſh or lordſhip. Theſe may be claſſed as follows:

1*ſt*, Strong, deep ſtapled ſoil, chiefly conſiſting of clay, free from any mixture of ſtone or gravel.

2*d*, Light, thin, reddiſh ſoil, chiefly conſiſting of loam 6 or 8 inches deep, on a bed of ſtone, here called Kealy, or Scaley rock.

3*d*, A rich loam of 8 or 10 inches deep, with a mixture of gravel, the under ſtratum being clay, mixed with ſmall pieces of red or white ſtone.

4*th*, A thin, ſtaple, light clay, very retentive of water.

5*th*, Fen and meadow land.

Climate.—The climate of this county is very favourable both to health and vegetation, and this may be accounted for from its ſituation and other natural advantages.

It is abundantly ſupplied with excellent water. The ſurface of the ground is no where ſo elevated, as to confine the foggy and unwholeſome vapours (which at times ariſe in this and in every country) from being ſpeedily diſperſed. As there are no high hills here, it is in a great meaſure exempted from

deep falls of ſnow, and long continued rains, which are ſo injurious to farmers in the vicinity of mountainous regions; and as the ſeaſons change gradually, the health of the inhabitants is little affected by them, and the operations of huſbandry are ſeldom long or unexpectedly ſuſpended by the inclemency of the weather.

Rivers and Waters.—There are perhaps few diſtricts better ſupplied with water than this, while the inconveniencies which ſo often happen from enjoying that advantage, are here felt but in a very inconſiderable degree. In almoſt every part, it abounds with fine ſprings, which being very plentiful in the upper part of the county, form numerous ſmall brooks and rivulets, ſeveral of which uniting in their courſe towards the ſea, at length become navigable rivers.

There are five rivers which take their riſe in this county, the *Nen*, *Welland*, *Ouſe*, *Leam*, and *Charwell;* and what is very remarkable, conſidering the different courſes which they take, the ſources of the former and of the two latter are ſaid to ſpring out of one hill, near Gateſby and Hellidon, in the hundred of Fawſley.

The *Charwell*, after running for ſeveral miles along the weſtern boundary of this county, enters Oxfordſhire, and joins the Thames at the city of Oxford.

The *Leam* joins the leſſer Avon near Warwick, and afterwards joining the Severn, falls into the weſtern ocean.

The *Nen* is the moſt conſiderable of theſe rivers. After taking its riſe, as above mentioned, it is quickly joined by a number of other ſmall ſtreams and brooks in the vicinity of Daventry, and continues its courſe from thence to Northampton, where it becomes navigable, and forms a conſiderable

able river, extending its courſe along the eaſt ſide of the county, it paſſes Wellingborough, Thrapſton, Owndle and Peterborough, and from thence, by a new cut, (called Morton's Leam), to Wiſbech, below which it diſcharges itſelf into the German Ocean.

The *Welland* takes its riſe near Hawthrope, in the hundred of Rothwell, and winding along the north boundary of the county, it paſſes by Rockingham and Stamford, where it becomes navigable; from thence to Spalding, below which place it communicates with the ſea.

The *Ouſe*, which is one of the principal rivers in the kingdom, takes its riſe from a ſpring called Ouſe-well, near Brackley, in the hundred of Sutton. It quickly leaves this county, and after taking a circuitous courſe through part of Buckinghamſhire, touches again upon it at Stoney Stratford; from whence it paſſes to Newport-pagnel and to Bedford; from which laſt place it is navigable to the ſea at Lynn.

Theſe are the moſt conſiderable rivers; but there are a great many ſmall ſtreams and brooks, which, after taking various windings through different parts of the county, diſcharge themſelves into one or other of theſe rivers; and beſides the convenience and advantage which the inhabitants enjoy from ſuch an abundant ſupply of water, theſe rivers and ſtreams, are not only uſeful for ſupplying the mills for grinding wheat and corn, of which there are great numbers erected upon the banks, but great advantages are alſo derived from the navigation of the *Nen* and the *Welland*, particularly the former, as it paſſes through the greateſt part of the county, and by means of which the inhabitants are ſupplied from the ports of Lynn and Wiſbech with coals, fir-timber and other articles, while conſiderable quantities

quantities of oak, bark, and grain are ſent back in return.

TOWNS, POPULATION, AND MANUFACTURES.

This diſtrict is divided into 20 hundreds *, compriſing now 316 pariſhes, or townſhips, though on the firſt diviſion of the county into pariſhes, the number was 330; but ſeveral of them have been united of late years. The principal market-towns are Northampton, (the county-town), Peterborough, Wellingborough, Kettering, Owndle, Higham-ferrers, Towceſter, Brackley, Daventry, Rockingham, Rowell or Rothwell, Weldon and Cliff. Though it was not poſſible to aſcertain the number of inhabitants with any great degree of correctneſs, yet from the information received of the population of particular pariſhes in different parts of the diſtrict, the number of inhabitants may be reckoned at 400 in each of the country pariſhes or townſhips, and 3000 in each of the market-towns, making in all 167,600,

* England was firſt divided into tithings and hundreds b year 900. The ancient tithings conſiſted of 10 men and their original inſtitution, 10 of theſe tithings were directed to meet in order to inquire into the ſtate of the country, ſuch meetin hundreds. By this law, the honeſt inhabitants of every village ſwerable in their own private fortunes and property, for all beries, and other depredations committed within their reſpecti compelled to aſſociate with their neighbours in arms, in orde violence, and to maintain peace and public order. And it i the damages ſuſtained by individuals, in conſequence of the v happened in London in the year 1780, were levied on the in principles laid down in this very ancient inſtitution.

of which by far the greater proportion is employed in agriculture.

The principal manufactures carried on in this diſtrict, are, ſhoes, bone lace, and woollen ſtuffs, principally tammys, callimancoes, and everlaſtings.

In Northampton, and ſome of the neighbouring towns, upwards of a thouſand hands are employed, in making ſhoes for the ſupply of the army and navy, and the ſhops in London, and alſo for exportation to different parts of the world. About 7000 or 8000 pairs are manufactured weekly in time of peace; but at preſent, (July 1794), in conſequence of the war, from 10,000 to 12,000 may be manufactured in the ſame period. The price runs from 3 s. 6 d. to 5 s. and upwards the pair. The medium price may be reckoned at 4 s. 3 d. of which about 1 s. 6 d. is paid for labour.

The leather is purchaſed partly in this and the neighbouring counties, but chiefly from the London market. A journeyman earns from 7 s. to 14 s. the week; but from 9 s. to 10 s. may be conſidered as the general average.

In Wellingborough, and the neighbourhood, and towards the ſouth-weſt corner of the county, from 9000 to 10,000 perſons, moſtly young women and boys, are employed in lace making. They earn from 2 d. to 1 s. 6 d. the day, generally, however, about 6 d. nearly one ſeventh part of which muſt be deducted for materials, in the proportion as 3 s. to 20 s. and conſequently 17 s. in the pound of the value of the article are paid for labour. The price varies from three halfpence to 15 s. the yard; and what ſeems very extraordinary, riſes regularly one halfpenny the yard. The greateſt demand is for that quality which ſells from 2 s. to 3 s. *per* yard. All the thread of which the lace is made, is imported from Flanders, and the goods, when finiſhed, are partly exported to America, the Weſt India iſlands,

and Ireland, but by far the greater proportion is uſed in Britain.

The woollen manufactory is principally confined to Kettering, and its neighbourhood. This manufacture was in the higheſt perfection it has ever attained at the beginning of the preſent war. A very conſiderable number of perſons were employed, in the different branches of it, at that time. It is difficult to form any probable gueſs at the number; but perhaps from 5000 to 6000 would not be an extravagant calculation. At preſent, not more than one half of the number of perſons are employed in it. The wool, in the firſt inſtance, is bought by the manufacturers of the growers, or farmers in the neighbourhood. It then undergoes a very minute aſſortment; and the different kinds of wool, which are found in every fleece, are appropriated to ſupply the proper markets, in the different parts of the kingdom where they are reſpectively manufactured. Thus, for inſtance, the coarſeſt, or long-ſtapled wool, is ſent into Yorkſhire, where it is made into broad cloths and flannels; the fineſt, or ſhort-ſtapled, is reſerved for the home manufactory, for the purpoſe of being made into tammys; and ſome of the moſt inferior of the laſt deſcribed wool, is likewiſe conſumed here in making calamancoes and everlaſtings. After the wool is ſorted, and the different kinds are aſſigned, to the reſpective purpoſes for which they are beſt adapted; that which is intended to be manufactured at home, is combed, and then delivered out, in ſmall quantities, to the lower claſs of people in the neighbourhood, to be ſpun and reeled, for which they are paid ſo much *per* pound, according to the fineneſs of the thread into which it is converted; it is then returned home to the manufacturer, who has it wove into ſuch kind of ſtuff as the quality of the thread will beſt anſwer. As ſoon as the goods are completed, they

are immediately ſent to the London and the Yorkſhire markets, where they are purchaſed by perſons who dreſs and dye them, and prepare them either for the ſupply of their retail cuſtomers, or for exportation to foreign markets. The ſpinning and reeling are chiefly performed by the females, and boys from 10 to 14 years of age. The price allowed, is from 10 d. to 1 s. 6 d. *per* pound. A tolerable ſpinner, who is induſtrious, earns, upon an average, 6 d. *per* day. Sorters are paid at the rate of 6 d. *per* tod of 28 lb.; combers receive 2 s. for every 13 lb. of wool. A good hand will make 9 s. or 10 s. *per* week. A weaver from 5 s. 6 d. to 6 s. 6 d. *per* piece for tammys, conſiſting of 32 yards in length, by 22 inches in breadth; and for everlaſtings, from 5 s. to 17 s. *per* piece of the ſame ſize, according to the fineneſs; and a good weaver will earn 1 s. 6 d. *per* day.

STATE OF PROPERTY.

There are many very conſiderable eſtates in this diſtrict, and by far the greateſt part of the landed property is in the poſſeſſion of noblemen and gentlemen, who reſide at leaſt ſome part of the year in the county.

There are few eſtates, the rentals of which exceed L. 10,000 *per annum;* there are a great many others under that ſum, down to L. 1000 a year, and the remainder of the property is either poſſeſſed by thoſe whoſe rentals amount to from L. 500 to L. 800, or by that reſpectable claſs of men who have been long known in England under the denomination of *Yeomanry*, who either occupy their own eſtates, of the value of from L. 100 to L. 300,

or who, beſides their own eſtates, rent extenſive farms from the landlords in their neighbourhood.

EXTENT OF FARMS, LEASES AND RENT.

There are no very large farms in this county; for although great progreſs has of late years been made in incloſing the open fields, yet the lands have been in many inſtances parcelled and let out again to the former tenants, who occupied them in the open field ſtate, and to ſuch extent as it was ſuppoſed their abilities and circumſtances would enable them to manage properly; ſo that it is only in the old incloſed pariſhes, where there are farms of any conſiderable extent; and even there, the rent of one farm ſeldom exceeds L. 500 a-year. In the new incloſed pariſhes, the farms are generally from L. 100 to L. 300 *per annum*, and in the open field lands, the rents run from L. 50 to L. 150.

This county may be ſaid to be principally occupied (with a very few exceptions indeed) by tenants at will, the few leaſes that are granted are of no longer endurance than for 7, 14 or 21 years; and the general conditions contained in them are, that the tenants ſhall purſue a certain rotation of cropping; that they ſhall not break up any old paſture ground; that they ſhall not diſpoſe of hay or ſtraw off the farm; and that they ſhall keep the houſes, buildings and fences in proper order. The terms of entry are either at Ladyday or Michaelmas, the former being the period for entering upon a grazing farm, and the latter on an arable farm. The rent is paid half yearly, and in equal portions. The firſt payment is uſually made twelve

months after the term of entry, and ſo on half yearly during the currency of the leaſe.

The average rent of the incloſed lands, which are generally exempted from tithes, may be accounted at 20 s. the acre, that of the open field lands, which are ſubject to the payment of tithes in kind, may be reckoned at 8 s. The tithes may be reckoned at from 3 s. to 3 s. 6 d. *per* acre over the whole open field farm, including even that part of it which is annually under fallow.

MODES OF TILLAGE adopted for raiſing the different Species of Crops.

In every part of this diſtrict, plowing is performed by a man and a boy, with 3, 4, and ſometimes 5 horſes in a ſingle length; and though the ſoil (as has been already obſerved) is of very different qualities, yet the ſame expenſive mode of plowing, with a few exceptions, univerſally prevails.

Wheat.—A certain proportion of the tillage lands is regularly under wheat, perhaps about one third of the whole. It is generally ſown in the open fields after fallow, but on the incloſed farms alſo, after beans or clover ſtubble. When intended to be ſown on fallow, the land is firſt plowed late in the autumn, and a ſecond time in the courſe of the ſummer, before which dung from the farm yard, without any earth or other mixture, at the rate of 12 or 14 cart loads *, is laid on the acre; and the third

* Dimenſions of the ordinary dung cart.

Length at top,	7 feet 6 inches.
Ditto at bottom,	5 feet 9 inches.
Breadth at top,	3 feet 9 inches.
Ditto at bottom,	3 feet.
Height of ſides,	2 feet.

third plowing (for more than three plowings are ſeldom given) takes place in the end of September or beginning of October. About 3 buſhels of ſeed are ſown on the acre, the average returns may be reckoned at 26 buſhels The ſpecies cultivated here are the Hertfordſhire white, the Eſſex down, and the red Lammas, or common red. This mode of huſbandry, however, is more peculiar to the open fields. A different mode of preparing the land for wheat is practiſed in the incloſed farms, where meliorating crops can be produced.

Beans and Peas are generally cultivated ſeparately, the former in conſiderable quantities. They are commonly ſown after wheat, though beans ſometimes are ſown on lands broke up from graſs. The land is once plowed, ſometimes in winter, but generally early in ſpring, according to the ſeaſon; and in the end of February, or beginning of March, ſeed, at the rate of 5 buſhels, is ſown on the acre. This crop is in general very uncertain, eſpecially on the light lands; but may be eſtimated, for a courſe of years, and including all the various ſoils on which they are cultivated, at 14 buſhels *per* acre, on the open fields, and 20 buſhels on the old incloſed lands. The kind in uſe here, is the common horſe-bean.

Oats.—There is but a ſmall quantity of oats cultivated, compared with the other ſpecies of grain; not ſo much indeed as is ſufficient for the conſumption of the ordinary working cattle, which are principally fed with beans. Oats are here ſown after wheat, barley, and graſs. In every caſe, one plowing ſuffices, which is generally given in the ſpring. And about the beginning of March, ſeed, at the rate of 5 or 6 buſhels, is ſown on the acre. The average returns may be accounted at 36 buſhels *per*

acre, on the open fields, and 40 bushels on inclosed land. The species most cultivated, are what are here called the short small, and the Polish oat.

Barley is cultivated nearly in the same proportion with wheat. It is generally sown after turnip. The land is once plowed, commonly about Lady-day, and seed at the rate of from 4½ to 5 bushels, is sown on the acre. The return may be reckoned at 34 bushels the acre. The common long-eared barley is the only kind cultivated.

Rye is seldom cultivated here as a crop, though frequently as spring food for sheep; it is generally sown after oats or barley; the land is plowed, and the seed sown immediately after harvest, and the sheep are folded upon it about Lady-day. This is considered, and justly, as a great improvement, as the rye is ready to be folded upon by the time the crop of turnip is eat off, and the sheep by this means are kept on in good order, till the beginning of the grass season. It may also be observed, that it is an additional crop gained, because the rye is eat off in such time as to give an opportunity to prepare the land for a turnip-crop; indeed, all the preparation necessary is plowing, as in consequence of the sheep folding, the field must be well manured for the succeeding crop, whatever it may be.

Rape or *Cole* is also cultivated as winter and spring food for sheep. The land is plowed three times, and generally manured before the last plowing with yard-dung. About one-eight of a bushel of seed is sown on the acre. The time of sowing is in the month of June, or the beginning of July. The sheep are folded in the same manner as on rye or turnip, and continue till about the end of February; and if the winter is favourable, and not very

very wet, the cole is ſometimes allowed to ſtand for ſeed, when 30 buſhels on an average is produced from the acre. This article varies very much in price, from L. 18 to L. 35 *per* laſt.

Turnips are cultivated in conſiderable quantities on every farm under tillage. The land is generally plowed four times; the firſt time, after harveſt; the ſecond time, in April; the third time, in the end of May, or the beginning of June; and the land being then manured, they begin ſowing turnip in the end of June, and finiſh about the middle, or end of July. The ſeed is always ſown broadcaſt, and very ſoon after the turnips appear with the rough leaf; they are handhoed, by way of thinning them, which operation is repeated once, or oftener in the courſe of the ſeaſon, as occaſion requires. The turnip-crops are always eat off by ſheep, and principally by lambs; though a great number of wedders are fatted for home conſumption, and for the London market, particularly about Northampton, and the higher parts of the county. The ſheep are penned on the turnip-field in ſquare folds, according to the number, about 100 commonly on an acre. Theſe pens, or hurdles, are made of the underwood ſold in the foreſts; they are made 2 yards long, and coſt about 6 d. each.

Very few cattle are fatted on turnip here; when that is done, a few of the largeſt turnips are drawn from the field, and given to the cattle in the ſtall. They are alſo occaſionally fed on hay, at leaſt once or twice a-day. An ordinary crop of turnip ſells at from L. 3 to L. 5 *per* acre, the price depending greatly on the ſeaſon, and on the price of wool.

Potatoes are not cultivated here to any extent, the quantity neceſſary for the conſumption of the inhabitants being very trifling, and the diſtance from the London market too great, to allow the farmers to ſend them there with advantage.

Meadows.—There is a very great extent of meadows in this diſtrict, not leſs than 40,000 acres. They are in general of a rich fertile nature, owing to the frequent overflowing of the waters, and poſſibly, no artificial means, in the preſent ſtate of matters can be deviſed for their improvement. Indeed, the ſyſtem of watering meadows, or any other kind of land, is ſeldom practiſed here; and it is but in very few inſtances, except along the banks of the rivers, where the lands are capable of that improvement. The moſt conſiderable track of meadow is that, on each ſide of the river *Nen*, beginning ſeveral miles beyond Northampton, and, extending down to Peterborough, which, from the circuitous direction, and various windings of the river, between theſe two points, may be ſuppoſed to paſs through a country of more than 60 miles in extent.

In the few inſtances where artificial means have been uſed in watering theſe meadows, this mode of improvement has exceeded the moſt ſanguine expectation of the farmer, not only in producing a quantity of graſs greatly more abundant than in former years, but alſo in improving the quality. But unfortunately for thoſe occupying theſe meadows, they are in general not only debarred from uſing the river, as a means of ameliorating the ſoil, but when extraordinary floods take place, the crops of hay are ſo much damaged as to be comparatively of little value. This happens in a great meaſure in conſequence of different perſons having ſeparate and oppoſite intereſts in this river.

The perſons here meant are the proprietors of the navigation, and thoſe having right to erect mills, between whom, and thoſe intereſted in the preſervation of the meadows at large, many diſputes ariſe. If an arrangement could be effected, by which a more uninterrupted courſe could be procured for

the river, thefe extenfive meadows would certainly advance in value to the extent of feveral thoufand pounds a-year. It muft alfo be obferved, that the mills are generally built in the worft poffible fituations; for in place of being erected on the fides of the meadows, and fupplied by a *lead* or *cut* from the main body of the water, they are built on low ground, and every miller has the command of the whole river, by which means an obftinate man has it in his power, in time of flood, to injure his neighbours with impunity, and that too without, in any degree, benefiting himfelf.

Artificial Graffes.—The kinds of artificial graffes ufually fown in this diftrict, are broad or red clover, at the rate of 20 lb. the acre. When the lands are intended to be broken up, after one or two years, the quantity of red clover is fometimes diminifhed, and 4 lb. or 5 lb. of trefoil are added.

When the lands are intended to lie in grafs for a number of years, the feeds fown are, 4 lb. red clover, 16 lb. white ditto, and one-half bufhel rye-grafs.

Saintfoin is fometimes cultivated, but not generally.

Chicory.—The only experiment made of this plant, is by Mr Martin, on his farm of Janfor Lodge, near Oundle. He has planted about 2 acres; and in the end of July it had a very promifing appearance. He will, if defired, chearfully communicate the refult of this experiment to the Board of Agriculture.

HARVESTING THE CROPS.

The mode of harvefting the corns, which is univerfally adopted in this diftrict, is as follows:—The

wheat is reaped with the ſickle: This work is either performed by people hired for the harveſt, (which generally continues about a month), or by undertakers, who reap, bind, and ſet it up in ſhocks; for which they receive from 6 s. to 9 s. the acre, according to the bulk of the crop. And, when this operation is performed, and the wheat carried home, and put into the barns, the ſtubble is mowed with ſcythes, and raked together in heaps, which, when done by the great, or piece, coſts about 2 s. the acre. The ſtubble is carried home to the ſtack-yard, and is uſed in thatching houſes, and as litter for the cattle.

The other ſpecies of crops are all mowed by the ſcythe, either by men employed for the whole harveſt, or at a certain price *per* acre, which varies from 1 s. 3 d. to 2 s. Oats and peas are ſeldom moved out of the ſwaths, in good weather, till ready to be carried home. Barley and beans are repeatedly turned over, before they are in a condition to be built, either in the barn, or in the ſtack-yard; and when the waggons are employed in carrying home the crop, all hands, that can be ſpared, are engaged in raking the grounds, which is done with long headed rakes, made for the purpoſe. The hay harveſt operations, are carried on in the ſame manner here, as in all other parts of the kingdom.

Having been favoured with an account, of the particular days on which harveſt commenced on a farm near the centre of the county, for the laſt ſeven years, it is here ſubjoined.

1787.	13th	Auguſt.
1788.	4th	ditto.
1789.	18th	ditto.
1790.	16th	ditto.
1791.	8th	ditto.
1792.	13th	ditto.
1793.	1ſt.	ditto.

MANURES.

MANURES.

Lime.—This county abounds with limeſtone in almoſt every corner, and conſiderable quantities are manufactured for the purpoſes of building, yet very little is uſed as a mean of improving the ſoil; although, where it has been properly applied, its effects have been abundantly conſpicuous. One great reaſon why it has not come into more general uſe, may be owing to many injudicious experiments having been made, where the quantity uſed has been too ſmall to produce any beneficial effects. There can be no doubt but lime applied in a proper manner, and, in ſufficient quantities, from 300 to 400 buſhels of powdered lime to the acre, would operate very powerfully on moſt of the ſoils in this diſtrict; and it is to be hoped, thoſe proprietors who pay ſo laudable an attention to the improvement of their eſtates, and of the country at large, will make ſuch experiments on their own farms, as will be the means of introducing the general uſe of this valuable manure, which has in other countries been productive of ſuch great improvements. Lime-ſhells ſell at from 6 d. to 7 d. the buſhel at the kiln, though it might be manufactured on much lower terms, in kilns properly conſtructed.

Marl is not uſed here as a manure, though there is rich ſhell-marl in different parts of the county, particularly on his Grace the Duke of Buccleugh's eſtate of Boughton, and Sir George Robinſon's eſtate of Cranford. The effects of this manure, in producing great crops both of corn and graſs, are well known in many parts of Scotland, and it would no

doubt operate as powerfully here, if properly applied *.

Woollen

The marl which has been discovered upon the Boughton estate, was found in a and, rather wet situation in Boughton-park, at about 20 inches from the surwhich consists of a dark rich loamy soil; a white loamy earth presents itself, mixith a great quantity of fine small shelly substances, which, when perfectly drained dried, either by the sun or fire, adheres together in lumps, and becomes extremely . Upon immerging a piece of it in common vinegar, it causes a great effervescence. shelly particles in a great measure dissolve, and the whole soon becomes a smooth l plaster. This stratum of white earth is from 12 to 18 inches in thickness, when er stratum is found, consisting of a darker coloured earth, with a large mixture of ay, and a much smaller quantity of shells than the white kind. This last stracontinues about the same depth as the former, when the strong clay makes its apce.—The following valuable information, respecting this marl, has been given by genious and learned chymist in Scotland.

I have assayed the two marls; one of them is almost white and chalky; the other, of a llowish colour, and darker, and more plastic, like clay. The first is as rich a marl ever I assayed. It is, when perfectly dry, very nearly equal in value to the first chalk, best limestones; the difference is not more than 2 or 3 *per cent.*; and it has the adntage, as a manure, of not needing to be burnt. But when newly taken up from bed, it must contain a considerable quantity of water, and its value will be the s by this quantity of water, whatever it is. If, for example, one ton weight of e wet marl contains a quarter of a ton of water, it will be equal in value to threurths of a ton nearly of the best unburnt limestone. The quantity of water is sily learned, by weighing a quantity of the wet marl, and then drying it thoughly, and lastly weighing it again.

The yellowish and more clayish marl is of little value in comparison with the form. It contains only when perfectly dry, one part of calcareous or lime earth in ten marl; the nine parts being clay and sand. Marls, however, not richer than this, e valuable in some places that are at a distance from lime, and in using them, a eater quantity is laid on the soil, to make up for their defect in quality."

From the above chymical experiment, it appears, that the white earth contains a much er proportion of calcareous matter, than the darker coloured. There cannot be the lest doubt of both proving a very valuable manure, particularly for grass-ground; much smaller quantity will be required for that purpose, of the former, than of the r. It is presumed a considerable quantity of this marl might be found in the neighbood, but chiefly in low aud moist situations. The same stratas of earth here mened having been found, by digging in many other places, near to which this has been overed. White earth of the same kind, has been found at the bottom of a pond in a wet part of the park, at the distance of near 300 yards from the first situation, from

which

Woollen Rags are the only artificial manure uſed in this diſtrict to any extent. Beſides, what are procured in the county, conſiderable quantities are purchaſed from Leiceſterſhire, and the other neighbouring counties. They coſt about 4 s. the hundred weight, beſides 2 s. for chopping. Six hundred weight is generally applied to an acre. This kind of manure is generally uſed as a preparation for a crop of barley, and is found to anſwer well.

Compoſt Dungbills are ſeldom made, the dung being in general carried direct from the ſtraw-yard to the field.

When compoſts are made, they conſiſt of farmyard dung, and the ſcourings of ditches, or ſoil collected on the ſides of roads, together with a certain quantity of lime. The farmers who follow this practice, conſider the extraordinary expence, and trouble, as fully compenſated, by the benefit, which the lands receive, from the addition of the rich earth, and rotten vegetables, which are thus procured, and which operate more powerfully in conſequence of the lime, with which they are mixed.

PRE-

which it is conceived, there muſt be a continuation of the di
ſore deſcribed; though inſtances have been known where m
bred, and produced, by the continual accumulation of putrified
ticularly in low ſwampy ſituations covered, or, ſurrounded by
the caſe with the pond here mentioned.—An experiment is
autumn in Boughton-park, by laying various proportions of
ent kinds of ſoil, and in different ſituations; the effects of w
will be very willingly communicated to the Board of Agric
cumſtance be thought worthy of notice. If this kind of dre
even to equal the effects of common manure, it may prove a
as no doubt great improvements may be made upon meadow
ſuch aſſiſtance can be procured. It would certainly be worth
boring iron, to examine the ſtrata of all the meadows, and low

PRESENT STATE of the COUNTY, in regard to AGRICULTURE, and, the Modes of Management.

It has already been ſtated, that there are 316 pariſhes in the diſtrict, 227 of which are in a ſtate of incloſure, and 89 in open field; beſides which, there are many thouſand acres of woodlands, and a large track of rich valuable land, called the Great Peterborough Fen, in a ſtate of commonage; ſo that ſuppoſing the incloſed part of the county at preſent under the moſt approved modes of management, there is above one third of the whole, by no means in the beſt ſtate of cultivation of which it is ſuſceptible.

In deſcribing the preſent ſtate of the county, it may be proper to claſs it under the five following diviſions, *viz.* old incloſure, new incloſure, open field, commons, and woodlands; and to give a particular account of the different modes of management practiſed by the tenants who occupy the lands, under all theſe various diviſions.

Old Incloſures.—Perhaps one half of the incloſed pariſhes, may be denominated old incloſures, at leaſt that proportion may be ſaid to be occupied as grazing farms, which is the uſe to which old incloſed lands in this county is generally applied.

STOCK and MANAGEMENT of a FARM uſed for BULLOCKS, and SHEEP grazing, or fatting for the Butcher.

One hundred and ſeventy acres old paſture, 70 acres meadow, rent L. 300, poors rates, and other parochial taxes 5 s. 6 d. in the pound of rent, lands exonerated from tithes.

Soon after Ladyday, the farmer begins to purchaſe bullocks, and the breeds of Shropſhire and Herefordſhire are preferred. In the courſe of the ſummer a few Scotch and Welſh cattle are bought in. The ſtock never exceeds 70 bullocks and heifers. He begins ſelling off in September, and by the beginning of February the whole is diſpoſed of.

From the end of October hay is given twice a day in the field. The cattle are conſigned to a ſaleſman in London.

The expence of ſending them there, including the ſaleſman's commiſſion, amounts in ſummer to 6 s. 6 d. and in winter to 7 s. each. The buying-in price of Shropſhire and Herefordſhire cattle is from L. 13 to L. 14, and the ſelling price from L. 17 to L. 18. About 100 ewes with lamb (generally of the Shropſhire breed) are purchaſed in the month of September, at about L. 21 the ſcore. Sixty wedders of one year old, here called Shearlings, alſo of the ſame breed, are purchaſed about the beginning of winter. The price about L. 26 *per* ſcore. Begin ſelling off the lambs (many of the ewes have two lambs) in May. The average price L. 22 the ſcore. The ewes are ſold from September to December at about the ſame price with the lambs. The wedders, after they are ſhorn, are ſold in May and June, about L. 36 the ſcore. Expence of ſending to London 1 s. to 1 s. 2 d. each. A few young horſes are generally reared.

SERVANTS.

1 ſhepherd, at 8 s. *per* week.
A man or boy, at 5 s. *per* ditto.
No work-horſes or implements of huſbandry.

Dairy Farm.—Extent 200 acres paſture, and 50 acres meadow. — Rent L. 280.—Tithe free.—Poor rates, *&c.* 3 s. Milk from 45 to 55 cows; prefers the ſhort horned Yorkſhire. Plows none of the land,

 but

but makes as much meadow-hay as ſerves for provender in winter, and on which the cows are wholly maintained during that ſeaſon. Purchaſes ſtraw for litter, which generally coſts about 30 s. the waggon load. A few breeding mares are kept, and 5 or 6 young horſes, but no young cattle. From 8 to 10 cows with calf, and fatting for the butcher. The calves are ſold to Eſſex and other counties, where they are fed for veal. Keeps about 20 hogs in ſummer, and about half that number in winter. The buying-in prices from 20 s. to 25 s. They are kept 4 or 5 weeks, and fed entirely on milk. They are ſold in London at from 30 s. to 40 s. each. The expence of ſending there 1 s. 4 d. each. About 120 ſheep are regularly kept as a breeding ſtock. Butter, and milk for the hogs, are the only produce of the dairy. The butter is ſent twice a week to London by the ſtage-waggon. The price from May to November is 8 d. and from November to May 10 d. *per* pound. There is nothing particular in the manner of managing the dairy.

NUMBER OF SERVANTS.

2 men.
1 ſhepherd.
1 boy.
2 women.
No work-horſes or implements of huſbandry.

There are ſeveral farms, where a ſmall portion of the lands are in tillage, and which properly falls to be deſcribed under this head. The mode of management, however, is ſo nearly ſimilar (except in that particular) to the one before mentioned, as renders it only neceſſary to ſtate, that on theſe farms, a breeding ſtock, to a certain extent, is regularly kept; and that it is principally on ſuch farms, where attention has been paid to the improvement of the different breeds. The Diſhley or new Leiceſter breed

of ſheep, which is conſidered as the beſt yet known, is generally introduced on all theſe farms.

New Incloſures.—In what is called the new incloſed townſhips or pariſhes, a ſyſtem of alternate corn and graſs huſbandry is adopted; a certain portion of meadow is generally allotted to each farm, where it is practicable; and ſome particular fields are kept in conſtant paſturage.

PARTICULARS of a Farm, containing 220 Acres, beſides 40 Acres of Meadow.—Rent L. 400.—The Lands Tithe free,—Poors Rates, *&c.* 3 s. 6 d. in the Pound.

ROTATION OF CROPPING.

1ſt year, fallow, part turnip, the land dunged.
2d year, wheat, barley after the turnip.
3d year, beans or peaſe.
4th year, barley, with 18 lb. red clover to the acre.
5th year, clover.
6th year, ditto.
7th year, part beans and part oats.

NUMBER OF SERVANTS.

2 plowmen.
2 boys.
1 ſhepherd.
2 women ſervants.

STOCK.

9 horſes.
2 or 3 young horſes.
8 cows.
20 hogs, old and young.
A breeding ſtock of ſheep, conſiſting of about 200.

PARTICULARS of a Farm, containing 200 Acres of Tillage-land, and 100 Acres in a State of Pasturage.—Rent L. 300.—Tithe free.—Poor-rates 3 s. in the Pound.

ROTATION OF CROPPING.

Oats.
Turnip.
Barley.
Wheat, with 20 lb. white clover, one-half bushel rye-grass, and 4 lb. red clover.
Grass made into hay.
Ditto, pasture.
Ditto, ditto.
Ditto, ditto.

NUMBER OF SERVANTS.

4 plowmen.
4 boys.
1 shepherd.
2 women servants.

STOCK.

13 horses.
3 or 4 young horses.
20 cows and young cattle.
A breeding stock of 200 sheep on an average.
15 hogs, old and young.

N. B. By the above rotation, fallow is excluded, one half of the farm being under corn and turnip, and the other half under grass. Though it may be proper to observe here, that no general rotation of cropping is established in the county, each landholder or his agent, fixing on that, for which the soil and situation of the farm is considered as best adapted.

Open Field Lands.—Without entering into a particular detail, of the wretched system of husbandry, universally adopted in the open field parishes in

this part of the report, it is only neceſſary to ſtate ſimply what the ſyſtem is.

PARTICULARS of a Farm in the Open Field State, containing 100 Acres arable, 20 Acres Meadow, and 150 Acres Ley or Paſture.—Rent, L. 118.—Tithes payable in kind.—Poor-rates, and other Pariſh-taxes, 5 s. in the Pound of Rent.

ROTATION OF CROPS.

1ſt year, fallow, part turnip, the land dunged or folded with ſheep.
2d year, wheat, barley after the turnip.
3d year, beans, and a few acres under oats.

SERVANTS.

2 men.
2 boys.
2 women ſervants.
1 ſhepherd takes care of all the ſheep in the pariſh.

STOCK.

7 horſes.
9 cows.
6 or 8 hogs.
130 ſheep of all ages.

Commons.—Though there is not one acre of waſte lands in this county, properly ſo called, yet there are many thouſand acres in the open field lordſhips in a ſtate of common paſturage, which, under proper management, might be made to produce abundant crops both of corn and graſs, while at preſent they do not yield paſturage, which can at the higheſt computation be eſtimated at 5 s. the acre. Indeed, if the calculation was fairly made, the occupiers are not benefited to the extent of half that ſum, as the ſtock which they ſend to depaſture upon

 theſe

theſe commons, is liable to ſo many diſeaſes and accidents, as one year with another, nearly counterbalances any advantages which can be derived from poſſeſſing this right; while, on the other hand, the keeping ſuch extenſive tracks of land in a ſtate of commonage, is attended with one very great diſadvantage to the farmers in the neighbourhood, becauſe, while theſe rights of commonage are continued, no attention whatever will be paid to the improvement of the breed of ſtock; for it is not to be ſuppoſed, that a farmer who depends on the ſcanty food which theſe commons afford for the maintenance of his cattle, horſes and ſheep, will ever be at much expence or trouble for the improvement of the different breeds. Without enumerating all the various commons of ſmall extent, ſituated in different parts of the county, or the nature or extent of the common rights of paſturage, poſſeſſed by thoſe who reſide in the neighbourhood of the foreſts and chaſes, it may only be neceſſary here to mention particularly that of

THE GREAT PETERBOROUGH FEN.

A track of fine level land, containing between ſix and ſeven thouſand acres, of a ſoil equal to any perhaps in the kingdom of Great Britain, and ſuſceptible of the higheſt cultivation. It is ſituated between Peterborough and Crowland, towards the north-eaſt bounds of the county, and is ſubject to the depaſturage of the cattle, horſes and ſheep of 32 pariſhes or townſhips in the neighbourhood, which compriſe what is commonly called the Soke of Peterborough. The farmers who live in the townſhips immediately adjoining, conſider their right of commonage as of no value to them; and it may therefore be ſuppoſed, that thoſe who live at the diſtance of 8 or 10 miles cannot be much benefited thereby. Indeed, conſidering the preſent mode of management,

ment, it is impoſſible that any advantage can ariſe to the perſons having right therein. That it is a valuable track of land, however, if under proper cultivation, is fully aſcertained from the following circumſtance. The annual expence of keeping the drains, bridges, *&c.* in proper repair is conſiderable; and the means adopted by thoſe concerned, for raiſing a fund for this purpoſe, is to let a certain number of acres to ſome tenant in the neighbourhood for a courſe of corn cropping, for 3 or 4 years, when it generally rents at from L. 3 to L. 5 *per* acre. From this account, it may be ſafely ſtated, that if theſe ſix or ſeven thouſand acres were converted into private property, and divided into farms of a proper ſize, the whole might be rented on leaſes of moderate endurance, at from 20 s. to 30 s. *per* acre; and it may further be obſerved, that the produce of theſe lands, under that ſyſtem, would exceed what they now yield, to the extent of many thouſand pounds a-year, while the additional number of hands which would be requiſite for the cultivation of theſe farms, could not be ſhort of 1300 or 1400. The advantages, therefore, both of a public and private nature, which muſt neceſſarily reſult from a diviſion of this common, are ſo obvious, as to require no illuſtration.

The perſon who is moſt materially intereſted, is Earl Fitzwilliam, though a great many others are, to a certain extent, concerned. From the truly reſpectable character of that Noble Lord, there can be no doubt, that a proper application made to him, from all thoſe having intereſt in the diviſion, would be attended with the beſt conſequences, as, from his diſpoſition to be ſerviceable to thoſe who reſide in his neighbourhood, he would chearfully embrace ſo favourable an opportunity of materially promoting their intereſt. But as the whole inhabitants of theſe 32 pariſhes, may be ſaid to be in ſome degree concerned,

cerned, and as it would anſwer no good purpoſe, to call together ſo numerous a body of people, it might therefore be proper, that a meeting ſhould be held in each pariſh, and powers granted to one of the moſt reſpectable of the inhabitants, to meet a perſon deputed by each of the other pariſhes, in order to make the application, and procure his Lordſhip's conſent to the meaſure; and if obtained, of which there is no reaſon to doubt, application might then be made to Parliament, who would no doubt agree as to the propriety of the diviſion, and paſs a bill, appointing commiſſioners to negotiate the buſineſs in common form.

Among the various important objects, which naturally fall under the conſideration of the Board of Agriculture, there are none, which, in their conſequences, will prove more extenſively beneficial in a national point of view, than their giving every poſſible aid to thoſe ſpirited proprietors, who are anxious to promote the improvement of the country, by bringing the commons and waſte lands under cultivation, as nothing will ſo certainly promote or maintain an increaſed population.

With reſpect to what are the beſt means to be purſued in regard to the common in queſtion, it would be improper in this report to determine. It appears only neceſſary to repeat, that the improvement of it, would give regular employment to a great number of hands, and furniſh the public markets, with an additional quantity of ſeveral thouſand quarters of grain annually; all which can be effected, without being attended with any bad conſequences whatever.

Woodlands.—There are ſeveral very extenſive tracks of woodlands in this diſtrict; they conſiſt either of foreſts, chaces, or purlieu woods. The moſt conſiderable foreſt is that of Rockingham, which is ſituated in the northern parts of the county, begin-

ning near the village of Wansford, on the great north road from London to Edinburgh, extending for near 20 miles towards the centre of the county, and forming almoſt a continued chain of woodland country: There are two other extenſive foreſts, *viz.* Whittlebury and Salcey, lying towards the ſouth border of the county; the chaces are thoſe of Geddington and Yardly; the former in the neighbourhood of Rockingham foreſt, and the later in the vicinity of Salcey foreſt.

The purlieu woods, are both extenſive and numerous, particularly towards the lower parts of the county, and upon the borders of the foreſt of Rockingham; and beſides theſe, there are ſeveral ſmall tracks of woodlands, very advantageouſly and ornamentally ſituated, in many other parts of the county.

The whole of what are now conſidered to be foreſt woods, are ſubject to the depaſturage of the deer, and at a ſtated time of the year, to the depaſturage alſo of the cattle belonging to thoſe who reſide in the adjoining townſhips, and who claim to be poſſeſſed of a right of commonage; on theſe accounts, the profit arising to the proprietors of theſe woods, from the cutting of the timber, and underwood, is ſmall, compared with that arising from regular well managed purlieu woods, which are not ſubject to the annoyance of the deer and cattle.

The underwood in the foreſts and chaces, principally conſiſts of black and white thorn, aſh, ſallow, maple, and a ſmall proportion of hazle. They are generally cut at from 12 to 18 years growth; the different woods are divided into as many parts or ſales, as the number of years growth at which the underwood that is cut may amount to, ſo that a regular rotation in cutting takes place every year.

The proprietors of the underwood in the foreſt woods, are empowered by the ancient laws and cuſtoms of the foreſt, to fence in each part or ſale, as

ſoon as it is cut, and to keep it in *band*, as it is here termed, for 7 years, except againſt the deer, which are let in at the expiration of 4 years; but the cattle belonging to the commoners, are not let in till the end of 7 years from the time of cutting; ſo that there are always 7 parts or ſales conſtantly in *band*, and in which the cattle of the commoners are not permitted at any time to depaſture. But from the depredations to which the young underwood is ſubject, by ſo early an invaſion of the deer and cattle, even at the regular and ſtated times before mentioned, beſides the great damage frequently ſuſtained from inattention to the repairs of the fences, during the time it ſhould be kept in *band*; the heavy expences attending the making a new fence in the firſt inſtance, and the continual expence incurred in keeping it in repair, during the time it ſhould ſtand, make the profit ariſing from the underwood, very inconſiderable to the proprietor, compared with any moderate rent that might be expected from the land. The foreſt underwood, through he whole *ſale*, or part which is cut, does not in general bring above L. 4 the ſtatute acre, though ſometimes it is ſold as high as L. 6 the acre upon an average of the whole ſale; but this depends entirely on good management in keeping the fences in proper repair, ſo as to prevent the deer and cattle from breaking in before the limited periods, as well as in ſuffering the underwood to ſtand to a greater age than uſual.

At the time the underwood is to be cut, it is parcelled out into ſmall regular ſized lots, generally conſiſting of about a ſtatute rood of ground; the diviſions of the lots are made by cutting a number of ſmall paſſages or openings called trenches, which interſect each other at regular diſtances, and theſe trenches are juſt cut wide enough to admit of a paſſage between each lot; the underwood is valued and ſold

ſtanding,

ſtanding, and the purchaſers cut it and carry it away at their own expence. A conſiderable part of it is made into hurdles for folding ſheep on turnip; the remainder is applied to other purpoſes, and uſed as firewood, there being no coals in the county, but what are brought up the rivers *Nen* and *Welland*.

A fall of oak timber* is generally made at the proper ſeaſon in that part, or *ſale*, in which the underwood has been cut; and this fall conſiſts of the moſt unthrifty and unimproving trees, but the quantity and deſcription of timber, muſt depend of courſe upon the ſtate of the wood, as to the ſtock of timber.

It is a general cuſtom in the foreſt-woods, to value and ſell the trees ſtanding. Diſtinct and ſeparate valuations are generally put upon the timber, the top, and the bark reſpectively. And it ſometimes happens, that theſe three articles are ſold to three different purchaſers; but it is more uſual to ſell the tree and the top together, reſerving the bark, which is ſold to one purchaſer, previous to the fall of timber being made. The conditions and prices vary in different parts of the country; they run generally, however, at from 7s. to 9s. in the pound of the value of the tree.

The Prices of Timber in this Diſtrict are as follow:

Oak,	from	1s. 4d.	to	2s. 6d.	*per* foot.
Aſh,	from	10d.	to	1s. 6d.	*per* ditto.
Elm,	from	9d.	to	1s. 4d.	*per* ditto.
Poplar,	from	6d.	to	1s.	*per* ditto.

Every

* There is a very ſmall quantity of the oak timber taken out of the fo ſumed in the country. It principally conſiſts of timber of a large ſiz for the uſe of the navy than for country purpoſes. It is therefore generally bargains, by contractors for the navy, who come into the county regula during the ſeaſon for felling the oak timber. But if no ſpeedy and effec taken for the better management and preſervation of the foreſt woods, i cure a regular ſucceſſion of oak timber, the navy will, in a ſhort time, this valuable reſource.

Every other kind of white wood, ſuch as beech, cheſnut, lime, &c. ſell at ſomething more than the price of fire-wood.

It is a certain truth, and well worthy of the ſerious conſideration of Government, that the depredations committed in the extenſive foreſts and chaſes in this county, by the deer and cattle, in deſtroying the young trees at a very early period, prevent the poſſibility of obtaining any conſiderable ſucceſſion of oak-timber, as ſcarce any ſaplings or young oaks are to be ſeen, although there are undoubtedly a great number of ſeedlings produced by the falling of the acorns; yet, when the number of deſtructive enemies, to which they are expoſed in their infancy, is conſidered, it is a wonder how any of them eſcape their devouring jaws.

If the foreſts in the other parts of the kingdom are under the ſame management, there is no man who wiſhes well to his country, but muſt be alarmed at the proſpect of the deficiency, which, in proceſs of time, muſt take place in regard to that valuable article, oak-timber, for the ſupply of the navy of this kingdom. The evil certainly requires a ſpeedy and effectual remedy to be applied. What that may be, the wiſdom of the Legiſlature can beſt determine; but, as particular attention was paid during the ſurvey on which this report is founded, to the ſtate of theſe foreſts and chaces, compared with thoſe woods which are private property, it may be proper to add, that the difference is obvious to the moſt curſory obſerver. In the one, a young thriving oak-tree is ſcarcely to be ſeen, whereas, in the other, a regular ſucceſſion appears in every quarter. The miſerable ſtate of the Royal Foreſts does not originate from any want of public ſpirit in thoſe who have at preſent the charge of them, but neceſſarily ariſes from the errors of an ancient ſyſtem, which had in view more the preſervation of deer than of timber;

timber; and consequently sacrificed the preservation of the latter, for the purpose of securing food for the former.

Perhaps the best plan that could be adopted, would be to disforest all these woodlands, under severe restrictions however, in regard to certain proportions of them being continued as forests for the production of oak timber. Those having right to the timber and underwood, being also bound to give a compensation in land to the commoners, having a right of commonage in these forests and chases, and according to the nature and extent of their different rights. Were some such plan adopted, certain considerable portions of these forests and chases, might be devoted solely to the purpose of growing oak-timber, and one person only having interest in them, there is no doubt proper attention would be paid, in order to bring on a regular succession of timber, which could be effected, whilst at the same time, a considerable improvement might be made in the growth and value of the underwood.*

FARM

* I am indebted to Mr EDMONDS of Boughton-house, for th
ing Observations, and for many others scattered in various par

Purlieu woods are those woods which are situate immediat
forest, and which, at one time, formed a part of it; but the
at some former periods, obtained grants and permission fro
them, and to consider them as their own private property, the
any of the laws and regulations to which forest-woods are subj

MANAGEMENT OF PURLIEU WOODS.

THE management of what are called purlieu woods in this
ly from those of the chase and forest woods. These woods
course there is no obstacle to prevent the proprietors of them
mode of cultivation and management in their power; but th
very few instances taken; and little improvement toward
productive and profitable to the respective owners has been m
these woods principally consists of hazle, ash, sallow, white a
maple; it is generally cut from 11 to 14 years growth, whe

FARM BUILDINGS.

In this county, as well as in the greater part of England, the farmers ſtill live crowded together in villages,

ives, which is as ſoon as the leaves are completely off. That operation is perform-
nder the direction of the owner of the woods or his agent. The part intended to
ut is parcelled out for the convenience of the purchaſers into regular ſized lots, con-
ng of 20 ſtatute ſquare poles each. The whole of the underwood growing upon
h lot is indiſcriminately cut, and laid in one direction, on the ground from which it
roduced; and in ſome inſtances care is taken to ſelect ſuch aſh poles, as are of a lar-
ſize and proper to be converted to more valuable purpoſes, than thoſe which are in-
riminately ſold with the underwood. So ſoon as the operation of cutting is com-
ted, and the wood parcelled out as above deſcribed, a valuation is put upon each lot
parcel, according to its quality, and what it may conſiſt of; and the whole is then
l to ſuch perſons as may be inclined to purchaſe the reſpective lots or parcels, who,
er and above the price of the underwood, repay the expence of cutting it, which is
oportioned at ſo much *per* pole upon each lot according to its quantity. Such as the
ſent mode of management is in theſe woods, their produce is much more conſide-
le to the proprietor than foreſt or chaſe woods; but it is believed it is by no means
al to the produce of well cultivated woods in other parts of the kingdom. The
rage price of underwood, cut from 11 to 14 years growth, is about L. 6 *per* ſtatute
re; but it is ſometimes ſold ſo high as L. 8 *per* acre.

The underwood of the purlieu woods, as well as of the other woods in this diſtrict,
e management of which is exactly the ſame as that of the purlieu woods), is princi-
y bought by bakers, who conſume it as fuel. A conſiderable quantity of the ſmooth
d is manufactured into ſheep-hurdles, which are uſed for temporary fencing: but
ll caſes, a reſervation is made by the purchaſers of the aſh and ſallow poles which
uſed for various uſeful purpoſes in huſbandry. A fall of oak timber is uſually made
that part or quarter from whence the underwood is cut; the quantity of which,
courſe, depends upon the ſtate of the wood, as to a ſtock of timber.

The oak timber in the purlieu and private woods, on account of there being ſo good
ceſſion, as well as on account of there being a great deal of underwood, ſeldom at-
s to ſo large a growth as that found in the foreſt and chaſe woods; it is therefore
ch more fit and convertible for country uſes, and for all purpoſes of building and
bandry, and is principally bought by carpenters, joiners, wheelwrights, and other
ſicers in the neighbourhood.

Chaſe Woods.—There are two chaſes in the county, *viz.* Geddington and Yardly.
e former was once a part of Rockingham foreſt; but permiſſion was given by the

villages, or townſhips, as was the practice in the moſt remote ages, and when the ſyſtem of open, or

Crown many years ſince, to the anceſtors of the Montagu family to disforeſt to convert it into a chaſe; the latter, it is preſumed, was once a part of Salcey and has been disforeſted likewiſe.

Geddington Chaſe, is ſuppoſed to contain about 1400 acres, of which perhap acres are woodland, the remainder conſiſts of lawns, plains, ridings and viſtas. whole is now the joint property of his Grace the Duke of Buccleugh, and the Honourable Earl Beaulieu, ſubject to a commonage at a ſtated time of the ye from May-day to about Martinmas, for the adjoining townſhips. Deer are kept and it is in every reſpect managed like the foreſt woods, as to fencing out the de commoners cattle from that part which is annually cut. The woodland is divid 18 parts or ſales; in one of which the underwood is cut, and a fall of timber every year. It is afterwards fenced in for 7 years, (*viz.* 4 years from the deer, from the cattle); ſo that there are always 14 parts out of 18 open to the forme 11 parts out of 18 open to the latter, beſides the plains, ridings and viſtas, a ſm of which only are at any time included within the fence of the parts which a Although there is at this time a valuable ſtock of oak timber in this chaſe, prin conſiſting of trees of a large ſize, and which have been the growth of ages; y haps this extenſive and valuable track of woodland exhibits at this moment th ſtriking and lamentable inſtance of the evil and pernicious conſequences that m vitably attend property circumſtanced as the foreſt and chaſe woods are. The dations and ravages committed by the deer and cattle upon the young ſprigs and co at ſo early an age, not only prevent even the ſmalleſt poſſibility of obtaining a ſucceſſion of oak timber, but cauſe a daily diminution in the growth of the wood. The injury ſuſtained by the deer being admitted into the young ſpring w the firſt inſtance, is very conſiderable; but that injury is ſmall indeed, when com to the deſtructive havock made by the devouring jaws of a herd of hungry cattl mitted into the young coppice juſt as the leaves have begun to appear, and ſeaſon of the year when it ſome times happens they have juſt ſurvived a ſtate mine, the conſequence of a want of ſufficient fodder, in a hard and ſevere winter. the townſhips uſing a commonage in theſe woods (except one) are in an open ſtate, and no attention is paid by the occupiers to the deſcription of cattle bre reared, which are of the moſt inferior kind, and which, in conſequence of the im of the occupier of an open field farm to procure a ſufficiency of food for their ſ in the winter ſeaſon, are reduced to an extreme ſtate of leanneſs and poverty time they are turned into the woods, when whole herds of them ruſh forward like rent, and every thing that is vegetable and within their reach, inevitably falls a ſice to their voracious and devouring appetite. Under theſe circumſtances it is not ſurpriſing that contagious maladies are frequently the fatal conſequence; to which c

confid

or common field husbandry universally prevailed. Though these crowded situations might no doubt be

siderable number of cattle fall victims; and the loss sustained by the owners not deprives them of any profit or emolumen. from those that are fortunate e- gh to survive the malady, but prevents their deriving any advantage from the com- age that year, and probably for many years to come. Such are the inconvenien- which must ever attend property held under a mixture of interests, so extremely ini- al to each other as those of the commoner and the proprietor of the timber and un- ood are, in woods of this nature. Can there, at this time, be a subject to which the om of the Legislature ought more speedily to be directed? The great and alarm- ecrease of oak timber in this country is universally acknowledged and lament- every individual; and it is presumed there is not a Briton but who must be sen- how much that invaluable article tends, at this moment, to the preservation defence of his country, against a neighbouring nation, frantic with zeal to pro- e their diabolical systems throughout the civilized world. Those who are in the of managing woods, no doubt feel a very sensible respect for so fine and venerable duction of nature as that of an oak tree arrived at its full perfection, both in size growth; it is truly a living monument of the works of the Creator; and no one direct the fatal axe to be applied to its root, without reflecting that he is about, in minutes, to destroy what whole ages have been employed in producing; but it ld, it is conceived, be some consolation to such a person, could he discover in look- round this venerable trunk, some companions left to survive its loss, and who, in a g and thriving state, might receive additional vigour by the removal of their neigh- . But this, alas! in the present state of things, is a consolation that cannot be ob- d; for it must be next to a miracle indeed, if a young oak sapling escapes the nu- ous enemies to which it is exposed in its infancy. And if the system now practised ese woods, with regard to cutting down all such timber trees as appear mature, in an unthriving state, is long pursued, the result must be, that in a very few years, will not be a single oak tree large enough for the use of his Majesty's navy left em.

is presumed, the same facts and circumstances here stated, will apply to many thou- d acres of woodland in this county, as well as to many very considerable tracts of same description in the kingdom. Must it not then be a serious, important, and y lamentable reflection to the mind of every man who wishes for the preservation his country, that the Legislature do not immediately take some active and effectual sures to avert the impending evil that must otherwise inevitably take place?—— re those advantages that will attend an improved system of management in the st and chase woods are enumerated, it will be necessary to take the liberty of sug- ng the mode by which they may be attained. An inclosure of all the open field ishes having a commonage in the woods, must undoubtedly be the first and princi-

be attended with considerable advantages in ancient times, and though the system of open field husbandry, where

pal object to be obtained. That inclosure should extend to such parts of the fore chase woods as are situated within those parishes respectively. The act of Parli to be obtained for the purpose, should contain proper powers for the commissioners in appointed, to ascertain the value of the whole commonage in the woods, and vide and proportion the value of that commonage among the several townships rishes, according to the number of persons who may be found by them in each or township, to be entitled to any share or proportion of such commonage, and ing to their respective rights and interests. The commissioners should also be en ered to set out so much land, being part of the estate which the proprietor of the may be possessed of in each parish or township, to every commoner, as they may equal in value to the proportion of the commonage to which such commoner m entitled, and which they may judge to be a full and adequate compensation t commoner, for his right and interest in the forest or chase woods. The land so to be in compensation to each commoner, as aforesaid, to be added to the allotment which each commoner may be entitled to, in right of his estate and interest in th fields and commons, which allotment should be laid as contiguous to the ling-house or homestead of the commoner as possible. It is presumed this mode be adopted in all cases, where the proprietor of the woods is possessed of an estat property in the open fields and commons, or of any old inclosed lands belonging parish or township in which the woods may be situated, to enable the commissio set out a sufficient part of such property as they may judge equal in value to the of the commonage of such parish or township; but instances may occur where th prietor of the woods may not be possessed of either of those advantages; in that sufficient quantity of the woodland might be grubbed up and cleared, and conside part of the land intended to be inclosed, and might be valued and allotted by the missioners accordingly.

The present state in which the forest woods are held, it is feared, will nevertheles great many instances, make it impossible for the system above prescribed to be gen adopted; the remaining interest still reserved to the Crown, with respect to the dee other matters in these woods, will prevent the proprietor of them from being a accede to any measures that may be suggested for their advantage and improve until some previous arrangement takes place. It is hoped the commissioners land-revenue, who, it is understood, have now these matters under consideratio devise some means by which so formidable an impediment as a mixture of in must inevitably be to the improvement and advantage of landed property, m done away, and by which the respective owners and proprietors of the forest wood be enabled to pursue the best possible system of management in the cultivation of

The advantages resulting from such measures being adopted, as have been in regard to the forest and chase woods, would not only be very sensibly felt by

where practised, precludes the possibility of placing the farm-houses in centrical situations; yet it appears surprising that the buildings belonging to the farms in a state of inclosure, should still remain at such a distance from the farms; there being but very few instances where the houses are properly situated in the centre of the farms. The inconveniences which the farmers must labour under in consequence of residing at so great a distance from their farms; and the loss of time and consequent extra-expence, of bringing the produce from the extremity of the farm to their home yard, (as it is here called), and of carrying the manure to the distant fields, are so obvious, as to require no explanation.

The farm buildings are in general as badly constructed, as they are improperly placed. It being only on such farms where the houses have been recently built, and under the direction of the landlord's steward,

led, but would be so extensive as materially to affect the nation at
:o the individuals interested. Upon the deer and cattle being
woods, no interior fences would be required, and the proprietor
ıtinue such parts of his property as he might think fit, in a wood-
:nabled to introduce such a system of management in the cul-
ıntinued in wood, by means of which their produce might be
:d. The remainder of the parts not continued in wood, might
p, and converted to some useful purposes of agriculture. The
pending upon the precarious and uncertain advantage arising
› the woods, would become the possessor of a portion of land, the
ıroperly cultivated, would be a certain and valuable resource in
maintenance of himself and his family. *Secondly*, In regard to the
ın the inclosure of the fields and commons, an improved system
ltivation of the arable lands would take place, by which means
:orn and grain would be brought to market. The pasture land
'oved by the aid of meliorating crops and artificial grasses, which
oducing an improved breed of cattle and sheep. And, *lastly*,
ıll portions it might be divided, would become entire, and free
ı that must ever attend it when held and enjoyed by a mixture
inimical to each other.

ſteward, where any attention has been paid either to regularity or convenience.

It is the practice for the proprietor, to furniſh materials, (except ſtraw for thatch), and the tenant to be at all the expence of other repairs. And therefore, conſidering the uncertainty of the tenure on which he holds them, it is no wonder that he ſhould allow the houſes to fall into a ruinous condition. Upon the whole, it is certain that the farm-houſes in this diſtrict, are not kept in that tenantable ſtate of repair, which is for the mutual intereſt of the landlord and tenant.

The farm-houſes are built either of ſtone or brick, and covered with ſlate or ſtraw. The barns, which are very large in proportion to the farm, owing to the practice which here prevails of houſing as much of the crop as poſſible, are either built wholly of ſtone, and clay uſed as cement; or partly of ſtone wall, on which a houſe framed of wood (generally oak) is erected, and plaſtered over the ſides with clay. They are commonly thatched with ſtraw. The byres, ſtables, &c. are generally built of ſtone, and covered in the ſame manner, and with the ſame materials as the barns.

IMPLEMENTS OF HUSBANDRY.

The waggons, carts, rollers, and other implements of huſbandry, are ſo ſimilar to thoſe in uſe in the neighbouring counties, and which have been fully deſcribed in ſome of theſe reports, particularly in that of Leiceſter, that it is deemed unneceſſary to fill up this report, with what would have ſo much the appearance of repetition.

The

The principal implement, the plough, is a clumsey piece of work, with a long massy beam, and an ill formed timber mould-board, better adapted as a machine for 4 or 5 horses to pull along, than for the purpose of turning over a neat clean furrow. And it cannot admit of a doubt, but that with a well constructed light plough, with a cast iron mould-board, (such as are common in many parts of England and Scotland), a man with two horses a-breast, and without a driver, would do as much work, and to better purpose, than is here done by a man and a boy, with 3, 4 or 5 horses; indeed by the practice of the county, this is clearly admitted, as a double furrow plough, of a similar construction with the other, is pretty generally used, and which does double work with the same number of horses.

LABOURERS, AND THE PRICE OF LABOUR.

As there are no large manufacturing towns situated in this district, the variations in the price of labour are not considerable; and it is, upon the whole, more moderate than could well be expected.

The wages of a ploughman by the year, are from L. 8 to L. 10, with board and washing.

A young man or boy, from L. 4 to L. 5.

A female servant, about L. 4, 10 s.

A labourer in summer, receives 1 s. 4 d. without board, and in winter 1 s.

In hay-harvest, a man earns from 9 s. to 10 s. *per* week, and a woman 4 s. without board; though each is allowed a certain quantity of beer.

In corn-harvest, a man hired by the month, receives about L. 2, 10 s. besides board; a woman is paid at the rate of 1 s. the day without board.

Wheat

Wheat is threſhed at 2 s. 6 d. oats, 1 s. 4 d. barley, 1 s. 9 d. and beans, 1 s. 3 d. *per* quarter.

A carpenter by the day, has 2 s. 4 d. in ſummer, and 2 s. in winter.

A maſon 2 s. 4 d. without board.

A blackſmith charges 5 d. for a horſe-ſhoe.

Wrought iron, ſuch as is uſed in mounting ploughs or carts, coſts 4½ d. the pound.

Incloſing land, which is here always done with ditch and hedge, coſts 1 s. 6 d. the running yard, and includes the price of the quicks, caſting the ditches, a double row of poſt and rail, and keeping the hedges clean, and the fences in repair for 5 years.

Labour commences in ſummer at 6 o'clock in the morning, and ceaſes at the ſame hour in the evening; during hay and corn harveſt, labour begins at 5 o'clock in the morning, and ceaſes about 7 o'clock in the evening; and in winter, the operations of huſbandry go on from day-light to dark.

A man and a boy with 3 or 4 horſes, and a one furrow plough, will plow one acre in the day. This is done in what is here called one journey: In ſummer they are at work by 6 o'clock in the morning, and go between 7 and 8 hours without interval; after which the men are principally employed during the remainder of the day in providing food for the horſes.

The maintenance of the ſervants is here a very expenſive article to the farmer. The breakfaſt conſiſts of cold meat, with cheeſe, bread and beer. For dinner, roaſt or boiled meat with pudding, and for ſupper the ſame as at breakfaſt; and beſides ale, allowed on extraordinary occaſions, they have ſmall beer at command at all hours. The luxury in which this claſs of people live, accounts

in a great meafure for the neceffity of levying fuch immenfe fums annually for the fupport of the poor in England. While it is perfectly certain, that a perfon living in Northumberland, or North Britain, on ordinary fare, will do fully as much work, and to as much purpofe, as a Northamptonfhire ploughman, who is maintained at a much greater expence.

POOR-RATES.

The poor-rates vary greatly in this diftrict; in the country villages they run from 2 s. to 5 s. in the pound of real rent, paid by the tenant to his landlord, and in the towns much higher, particularly at Kettering, where, owing to the late decline in the woollen manufacture, they are advanced fo high as 12 s. in the pound.

It might juftly be deemed prefumption in the writer of this Report, were he to enter fully into the difcuffion of a fubject fo complicated as that of poor-rates; in the inveftigation of which, fo many able pens have been employed. He cannot however avoid remarking, that the evil appears to be getting to fuch a height, as will render it foon neceffary to adopt fome meafures more effectual than any that have hitherto been attempted, in order to keep this heavy tax within any reafonable bounds. And what is of ftill more importance, to curb that fpirit of licentiousnefs, which fo generally reigns within the walls of a parifh work-houfe, from whence fhame and honeft pride feem to be for ever banifhed.

MARKETS

MARKETS and FAIRS.

Besides the weekly markets which are held in all the principal towns, for the sale of butcher-meat, and other articles of provisions, there are several stated annual fairs for the sale of cattle, horses and sheep.

The price of provisions are as follow:

Beef and mutton, 4½d. *per* lb.	A goose, 3 s.
Lamb, 5 d. to 6 d. *per* do.	A turkey, 3 s. 6 d.
Veal, 4 d. do. do.	A duck, 1 s.
Pork, 4½ d. do. do.	A hen, 1 s. 3 d.
Butter, 8 d. to 10 d. do.	A chicken, 6 d.
Cheese, 4 d. to 5 d. do.	Eggs, 6 d. *per* score.
Bread, 1½d. do.	

The quantity of wheat and flour annually exported from this county is very great; but it was not possible, by any means, to ascertain the amount, as the greatest proportion is transported by land-carriage. The wheat is sold by the farmers to the millers in their neighbourhood, who convert it into flour, and dispose of it in the neighbouring counties of Leicester, Nottingham, and Warwick, and great quantities are annually sent down the Nen to Wisbech. A great proportion of the barley crop is made into malt, and consumed in the county. The oats, and a great part of the beans, are consumed by the horses; a small quantity of beans are, however, annually exported to Wisbech and other places.

Having been favoured with an account of the prices at which the bushel of wheat, barley, oats, and beans was sold on a particular farm in this di-

strict

ſtrict for the laſt ſix years, it is here ſubjoined, and may be depended upon as correct.

AVERAGE price, *per* Buſhel of Wheat, Barley, Oats, and Beans, from the year 1787 to 1792 inclusive.

	1787.		1788.		1789.		1790.		1791.		1792.		General average.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Wheat,	5	5¼	5	8½	6	4½	6	6½	6	3½	5	10¾	6	0½
Barley,	2	6¼	2	6¼	2	7½	3	3	3	1½	3	4½	2	11
Oats,	2	0¼	1	10¼	1	8¼	2	4	2	5½	2	6¼	2	2
Beans,	3	7½	3	8¼	3	6	3	11	3	10½	4	1½	3	9

ROADS and BRIDGES.

There are few diſtricts which can boaſt of a greater number of handſome, well built ſtone-bridges; every brook and rivulet is made paſſable by means of a ſtone arch; and the bridges on the larger rivers do credit to the public ſpirit of the inhabitants.

It is to be regretted, that as much cannot be ſaid in reſpect to the roads. Theſe, it muſt be acknowledged, diſplay no great ingenuity either in the engineer who planned, or in the undertakers or overſeers who executed the work. The great roads leading through the county are all turnpike, and are ſupported, partly by the money collected at the different toll-bars, and partly by the ſtatute-labour impoſed by act of Parliament. Each tenant who occupies a farm of L. 50 of rent being bound to perform 3 days labour of a cart with 3 horſes, and 2 men yearly, on the turnpike-roads within the pariſh, and the ſame on the private or parochial roads; and where there are no turnpike-roads with-

in the parish, the whole 6 days labour is applied to the repairs of the parish-roads.

From this account it might be supposed, that the roads in this district would be kept in a proper state of repair; but the contrary is the case, particularly in regard to the private or parish roads, which are in many places in a very ruinous situation, and, in general, so narrow as to admit of only one track. It is true indeed, that the country is but indifferently supplied with metal proper for road-making, the stone being very soft, and apt to grind into powder; —but it is equally true, that, in place of breaking the stone properly, and laying it on carefully to a proper depth, it is generally laid on the roads in the same state in which it is raised out of the quarry; and in place of being broke with hammers, that operation is only performed in the course of time by the cart-wheels.

In place of employing contractors who do not reside in the neighbourhood, and who, for the most part, execute the work in a very slovenly manner, it would be for the interest of all concerned, to farm both the public and parochial roads to active and intelligent farmers in the neighbourhood, who would be induced by a spirit of emulation, and a regard for character, to perform the work properly. Till some such plan as this is adopted, there is little chance that the roads in this district will be put in a proper state of repair.

LIVE STOCK.

On the first view, it will appear surprising, that, in this district, where so great a proportion of the lands are in a state of pasturage, little or no attention has been paid, till of late, to the improvement

of the different kinds of ſtock; yet, when reference is made to the manner in which the farms are occupied, as before mentioned; and when the vicinity of the great London market is conſidered, it will not be thought extraordinary. Of late years, indeed, the improvement of the breed of ſheep has become an object of the firſt importance with many of the moſt reſpectable and intelligent farmers.

Black Cattle. There are very few of this ſpecies of ſtock reared in this county, a few in the open field lordſhips excepted; and theſe are ſo croſſed and mixed with the breeds of other counties, which are often improperly choſen, and are ſo ſtinted in their food, as to render them comparatively of little value.

In the few inſtances where attention is paid to the breed of cattle on the incloſed farms, the long horned are the kind generally preferred, and are far ſuperior to the original breed of the county, both in ſize and ſhape, as well as in the other advantages which ought to be attended to by every farmer who occupies a breeding-farm, namely, their extraordinary diſpoſition to fatten, and to lay the greateſt quantity of fleſh and fat on the rump, loins, and other parts of the body, which always ſell higheſt at market.

The dairy farmers in the ſouth-weſt part of the county, however, prefer the ſhort horned Yorkſhire cows, from which county they are principally ſupplied. And, as they never rear any calves; they ſell them when a few days old, to a ſet of men who make a trade of carrying them to the markets of Buckingham, and other places, where they are purchaſed by dairy farmers from Eſſex, to be fattened for veal for the London market*.

It

nce which theſe calves are carried, from this county to Eſſex, s, it may be proper to give ſome account of the extraordinary

It is proper in a report of this kind, to mention the names of thoſe gentlemen, and farmers, who have been moſt inſtrumental in introducing better modes of huſbandry, and improvements in the breed of ſtock; and though little has hitherto been done, comparatively ſpeaking, in introducing a better breed of neat cattle, into this county, yet, Mr Pearce of Chapel Brampton, and Mr Robinſon, at Wellingborough lodge, deſerve to be mentioned, as having been at conſiderable expence and trouble in this reſpect.

Mr Pearce bought a bull calf of the late Mr Fowles of Rollright, in the year 1790, at one hundred guineas; and having ſold part of his ſtock in the year 1793, was abundantly compenſated for this outlay of money, from the very high prices which he received for what he diſpoſed of; as a proof of which, it may be mentioned, that he ſold a bull-calf of this breed, only ten days old, at 40 guineas; and, that a bull and four cows were ſold for L. 331 : 5 : 6.

Horſes.—There were very few work horſes bred in this county formerly, though, of late years, conſiderable pains have been beſtowed in improving the breed of this uſeful animal; and from the increaſed demand, and the conſequent high price, the attention of the induſtrious farmer, will, no doubt, be more generally turned to this important object. The horſes uſed in the operations of huſbandry,

manner in which they are tranſported. Sometimes 10, 15, or 20, are p being laid on their backs on ſtraw, and their feet tied. They are mainta ly for 8 or 10 days together on nothing but wheat-flour and gin, mixed to are here called gin-balls. In this manner, moſt of the calves bred on th in the county are diſpoſed of; ſuch a number only being reared as are keeping up the ordinary ſtock of milk-cows.

bandry, are for the moſt part purchaſed in the counties of Derby, Lincoln, and York; they are bought in at two or three years old. The object of the Northampton-ſhire farmer being to purchaſe horſes, which are likely to anſwer either for the coach, the army, or large waggons, he keeps them two, and ſometimes three years, and generally diſpoſes of them at a profit of from L. 7 to L. 10. A horſe proper for the coach, ſells for about L. 40 at five or ſix years old; a horſe of the ſame age for the army, at about L. 25; and a dray or waggon horſe, at about L. 30.

Some years ago, it was the practice here, to rear blood horſes; but experience has proved, that theſe animals, however valuable they may ſtill be in the eſtimation of the gentlemen, are unprofitable to the farmers, becauſe the leaſt blemiſh renders them altogether unſaleable; and if they ſhould not meet with any accident, they muſt remain ſo many years on the farm, before they can be ſent to market with advantage, as to render the profit precarious, and trifling. Such horſes as are now bred are fit to go into the team at two years old, and after two or three years ſervice on the farm, they are generally ſold for one or other of the purpoſes above mentioned. It is worthy of remark, that a few days ago a horſe of the laſt deſcription, with only one eye, was ſold for forty guineas, while it is well known that a blood horſe, with ſuch a blemiſh, would ſcarcely have been worth notice.

Some of Mr Bakewell's beſt horſes have covered in this county ſome years, though at a very heavy expence to the individuals who ſubſcribed for procuring them. There is nothing, perhaps, that would tend more to the general improvement of thi ſpecies of ſtock in the county, than if a number of the proprietors were to purchaſe ſome of the beſt

ſtallions

ſtallions that could be found in the neighbouring diſtricts, ſo that the tenants might be accommodated without any great expence or trouble. It was by this means that the breeding of blood horſes came into ſuch general practice here. And therefore, if the proprietors were to adopt this plan, it would induce their tenants to turn their attention to the breeding of ſuch horſes as are uſeful in the operations of huſbandry, as well as for various other purpoſes; for which the county is peculiarly well ſituated, the diſtance from London being ſo great as to prevent the farmer from experiencing a riſe of rent, or an additional charge for labour on that account; while he is, on the other hand, within the reach of the beſt market which this or any other kingdom can afford for the ſale of draught horſes.

Sheep.—There are here three different breeds of ſheep, which may be claſſed as follows, *viz.* The original breed of the county, the old improved, and the late improved, or new Leiceſter breed. About 50 or 60 years ago, when this diſtrict was in general in the open field ſtate, no attention was paid to the improvement of the breed of ſheep. The points which marked a good ſheep, in the opinion of the people of thoſe days, were, the wool thick ſet on the back, an open rump, loin wide, legs open, and bones clean from wool, oppoſed to what is now called *gum or coarſeneſs.* They were generally ſent to market from 2½ to 4 years old, and weighed on an average about 18 lb. the quarter. This breed, however, are now very rare, being confined to thoſe parts of the county where commons abound.

About 25 years ago an improvement was attempted, by croſſing the ancient breed with tups from Warwickſhire and Lincolnſhire, the breed of Warwickſhire being noted for great bone or ſize, and that of Lincolnſhire for the quantity of wool.

With the ſucceſs of this experiment the farmers ſeemed perfectly ſatisfied, as a general opinion prevailed that the animal would feed in exact proportion to the ſize of bone, and that an additional quantity of wool might be produced, without any detriment to the carcaſs. This practice, therefore, went on for many years. The new breed improved greatly in ſize, and the farmers gave themſelves no trouble to aſcertain whether the increaſe in ſize and weight could be accounted really beneficial or not. And ſo fixed and rivetted were they in the opinion of the good choice they had made, that it was not without much difficulty they could be perſuaded of the poſſibility of introducing any additional improvement. This, however, has of late years been effected, and the new Leiceſter or Diſhley breed (which form a complete contraſt to the former) are pretty generally introduced, owing principally to the following circumſtance: Mr Bakewell, whoſe name ſtands unrivalled in this line, about the year 1788, inſtituted a ſociety, conſiſting of himſelf and 15 or 16 other reſpectable farmers in Leiceſterſhire and the neighbouring counties *. This ſociety had for its object the improvement of the different breeds of ſtock, particularly of ſheep. And by almoſt every account, they ſeem to have ſucceeded beyond their moſt ſanguine expectations.

To follow them through all the experiments which they have individually made, or to detail the proofs which they are ready to produce, in regard to the difference of bone, offall, wool, &c. in order to aſcertain the advantages which the new Leiceſterſhire breed poſſeſſes over every other, would be an end-

leſs

* Of this number, the following members reſide in this county:

Meſſrs J. and S. Robinſons, Wellingborough; Mr John Tomlins, Rockingham Park; Mr John Bennet, Watford; and Mr John Manning, Arſlingworth.

leſs taſk. And though theſe experiments ſeem to have been fairly and candidly made, yet, as none have been attempted, in order to prove the ſuperiority of any other breed over this, it appears a matter of more general importance, to ſtate fully in what reſpects this breed is ſaid by thoſe more immediately intereſted, to excel all others; and then leave it to the impartial public to determine whether they have ſucceeded, and to what extent.

1ſt, It is ſaid, that this breed will, on a given quantity and quality of food, produce a greater profit to the farmer than that of any other.

2d, That they are extremely handſome or well made, and therefore more diſpoſed to fatten.

3d, That they carry more fleſh and fat on the ſame weight or ſize of bone.

4th, That they will thrive on ſuch paſture as other flocks would fall off upon.

5th, That an acre of land will maintain or fatten a greater number of them than of any other breed which bear the ſame proportion in ſize of carcaſs.

6th, That though the quantity of wool is about one fifth leſs than that of the old Northampton-ſhire breed, yet the value by the pound is about one tenth more; and that, for the reaſon laſt mentioned, both the quantity and quality of the wool, if the return is calculated by the *acre*, muſt be in favour of this breed.

7th, That this breed are ready for market in April or May, whereas the others cannot be offered for ſale before September or October; and that, therefore, not only a greater number can be kept on an acre, as above mentioned, but a ſummer's graſs is ſaved in the one caſe, which is uſed in the other.

8th, That the mutton of this breed, in conſequence of the cloſeneſs of its texture, will keep ſeveral hours longer in warm weather than that of any other of the ſame ſize.

Theſe

These are the most valuable properties which this breed of sheep is said to possess over all others; and if they really do possess them, it is not to be wondered at that their superiority should be so strenuously maintained.

On the other hand, it is asserted by many, that all the boasted superiority consists more in the high prices at which the members of the society dispose of their tups, than in any real improvement in the shape or constitution of the animal; and therefore they affirm, that this superiority must fall to the ground, as the breed comes to be more generally introduced.

It is perfectly clear, that high prices given for any species of breeding stock, certainly does not, *in every instance*, prove the intrinsic value or superiority of the breed; and therefore, if the new Leicester breed of sheep have nothing else to recommend them, they will not long keep up to their present character; but those who seem anxious to depreciate this breed, ought to come forward with something more likely to carry conviction to the mind, than bare unsupported assertions, which they cannot expect will meet with much credit.

The particulars above stated, in which this breed are said to excel all others, (and which have been inserted here, in order to bring the question fairly to issue), may be proved *true* or *false*, by every intelligent farmer in the neighbourhood; but as no attempt of this kind has hitherto been made, it is but fair at present to suppose that the superiority really remains unquestionable. The writer of this Report pretends to no particular knowledge in regard to the different breeds of sheep, and is one of those who would be ready to suppose that the size alone is what stamps additional value on either a sheep or a bullock; and, therefore, what is here stated, is

the ſubſtance of what he learned in the courſe of his ſurvey, rather than his own private ſentiments. It is, however, the general opinion over the kingdom at large, whether it be *well* or *ill* founded, that the new Leiceſter breed of ſheep is ſuperior to every other. Though it is not intended to ſtate that they have attained the higheſt poſſible degree of perfection to which it is practicable to bring the ſpecies, it is preſumed that even Mr Bakewell himſelf, deeply intereſted as he is, will not maintain this point; and therefore, in place of with-holding that degree of praiſe to which this ſociety ſeems ſo juſtly entitled, it would be fortunate for the community at large, if ſome men, equally knowing and attentive, would endeavour to prove the poſſibility of improving the breed to a ſtill higher degree of perfection; in the proſecution of which attempt, every well wiſher to his country will be anxious for their ſucceſs. It may be added, that one great objection to the new Leiceſter breed of ſheep, is *their diſpoſition to fatten to an extraordinary degree*, and that they are not ſo *delicate eating* as thoſe ſheep which require longer time to be ready for the market. It is believed, that the warmeſt advocates for this breed of ſheep, will not heſitate to allow their diſpoſition to fatten, though they may diſpute the other point, which depends in a great degree on the taſte of the conſumer; but if it is certain, that a quarter of this mutton, weighing upwards of 30 lb. will only have 2 lb. weight of bone, while a quarter of *the old improved Northamptonſhire breed*, of the ſame weight, will have about 5 lb. the improvement of the breed is at once determined, ſo far as the opinion of the *great body* of the conſumers can go; as a mechanic, or labourer, who has a large family to ſupport, by his earnings, if ſenſible of the fact, will be ready to agree, with the new Leiceſter ſociety, that an improvement has really been effected, at leaſt to the

extent of the value of 3 lb. of meat, in a quarter of mutton, compared with that of an equal weight of bone. It has been calculated, that every inhabitant in the kingdom eats a ſheep in the year. The calculation does not ſeem to be extravagant, and therefore the great queſtion in a national point of view, whether the breeds of theſe animals are improved, or reduced, to the value of 1 s. the head, appears of very great importance, and no doubt merits every degree of attention which the Board of Agriculture can beſtow, the difference either way being nearly equal to L. 400,000 a-year. The manner in which this ſpecies of ſtock is managed, and the prices, and conditions on which the tups are hired out, are ſo particularly mentioned in other reports of this nature, that it is judged proper to avoid a minute detail here, as not tending in any degree to promote the object in view.

OBSTACLES TO IMPROVEMENT.

The obſtacles to improvement may be claſſed under the following heads:

The continuance of open field lands;
Tithes payable in kind; and,
The want of leaſes.

Open Field Lands.—The management of the open field farms is governed by the eſtabliſhed cuſtoms which have prevailed in the pariſh for ages. An open field pariſh may be claſſed into three diviſions, *viz.* tillage, meadow, and paſturage.

The tillage lands are cropped in the manner before mentioned, and the ſeveral occupiers muſt conform to the ancient mode of cultivation of each diviſion or field in which their lands are reſpectively ſituated; from which it will appear, that one obſti-

nate tenant (and fortunate muſt that pariſh be accounted, where only one tenant of that deſcription is to be found) has it in his power to prevent the introduction of any improvement, however beneficial it may appear to the other inhabitants of the pariſh. The tillage lands are divided into ſmall lots, of two or three old faſhioned, broad, crooked ridges, (gathered very high towards the middle, or crown, being the only means of drainage that the manner in which the lands are occupied will admit of), and conſequently the farmer poſſeſſing 100 acres, muſt traverſe the whole extent of the pariſh, however large, in order to cultivate this ſmall portion. The great additional expence of cultivating lands, ſo ſituated, muſt be obvious to every farmer of common underſtanding; while the never-ending rotation of corn-crops, to which the lands are ſubjected, muſt render them incapable of producing any tolerable returns.

The meadows are kept in a ſtate of common paſturage from the time the hay is carried off till Lady-day, by which means the crops of hay are very indifferent, compared with thoſe produced on incloſed lands properly managed.

The leys are generally divided into three fields; one is allotted for the paſturage of the ſheep, another for the cows, and, on the third, the ſhameful practice of *tethering* the horſes is ſtill continued. And by every information that could be procured, it appears that the ſtock is not kept with a view to any profit that can poſſibly ariſe from the ſales, but merely as the means of cultivating and manuring the ſoil. Indeed, long experience has evinced, that no ſpecies of ſtock kept in theſe open fields, can be carried to market on terms nearly ſo advantageous, as the ſame articles reared by thoſe farmers who occupy incloſed lands; nor is it to be ſuppoſed, conſidering the manner in which the ſtock is treated, that the owners will pay much attention

to the improvement of the different breeds. While the numerous inconveniencies attending the occupation of land, ſo diſperſed and intermixed, as open field lands always are, will remain for ever a bar to the introduction of any improved ſyſtem of huſbandry; the greateſt, indeed the *only* objection againſt incloſing is, the depopulation of the pariſh, which, it is ſaid, generally takes place in conſequence thereof: While it may be admitted, that the inhabitants of a pariſh muſt undergo a very material alteration in their ſituations, in conſequence of its being incloſed; yet it does not follow of courſe, that depopulation muſt be the conſequence; as, though ſeveral of thoſe who occupy ſmall farms, muſt neceſſarily be removed, in order to enable the proprietors to claſs the lands into farms of a proper ſize; yet it is equally clear, that a new ſet of people muſt be introduced, ſuch as hedgers, ditchers, road-makers, and labourers of every deſcription; and therefore, this may rather be called a ſhifting of population from one village to another, than an expulſion from one particular pariſh: And were it clear, that depopulation was the conſequence of incloſing a pariſh, that depopulation does not ariſe from the incloſing, but from the total alteration of ſyſtem which commonly takes place in the management of the lands. For if, in place of laying down the lands in graſs, which but too generally happens on theſe occaſions, they were cultivated in an alternate courſe of corn and graſs huſbandry, the number of hands neceſſary for the cultivation, and carrying on the various improvements, which would in ſuch a caſe be immediately introduced, would be at leaſt equal to the number of inhabitants in the open field ſtate.

The average rent of an acre of open field land in this diſtrict, including the value of the tithes, which may be reckoned at 3 s. 6 d. *per* acre, may amount

to 11 s. 6 d. while the average rent of an acre of the inclofed lands, which are generally exempted from tithes, may be accounted at 20 s. which makes the difference of 8 s. 6 d. *per* acre; and as there are 89 parifhes in this county, in the open field ftate, which may contain nearly 150,000 acres, the rent which the proprietors of thefe parifhes lofe by keeping them in an open field ftate, may be eftimated at upwards of L. 60,000 a-year; while at the fame time the introduction of improvements are precluded, and confequently an increafe of rent on rational principles. It may, however, be proper to add, that humanity, as well as ftrict propriety, fhould induce thofe who act as commiffioners under an inclofing bill, to give a compenfation in land in every cafe where poffible, to thofe having a right of commonage in the parifh, in place of a confideration in money, by which means thofe people, in place of being obliged to remove, would be induced to build fmall cottages upon their own property.

One great obftacle to the inclofing of parifhes, feems to be the very great expence to which the proprietors are fubjected, in procuring the act of Parliament, and carrying it into execution. As this complaint is general all over the kingdom, it is to be hoped, that fome plan will be devifed by the Legiflature for obviating this difficulty, and for enabling proprietors to effectuate this great improvement with more facility, and at lefs expence. There is not perhaps any one circumftance regarding the agriculture of England, that deferves the ferious attention of the Board of Agriculture more than this.

Tithes.—The collecting of tithes in kind is very generally complained of, and in thofe parifhes where that mode is adopted, it certainly operates very powerfully againft the introduction of improvements in hufbandry; while at the fame time it is attended with very difagreeable confequences, both

in a religious and political point of view, as it is often the means of creating ſuch diviſions between the clergyman and his pariſhioners, as renders the religious inſtructions of the former of little avail, while it looſens that chain of intercourſe and connection which it is conſidered of ſo much importance to keep united. It has happened, (though to the credit of the clergy of this diſtrict be it ſaid, the inſtances are very rare), where the tithes have been let to a layman for the purpoſe of oppreſſion, he has been known to exert that authority with which he was inveſted, and has not only taken the tenth ſhock of corn, and the tenth cole of hay, but alſo the tenth lamb, pig, hen, egg, *&c.* nay has even gone into the garden, and taken not only the tenth part of the fruit, but alſo the tenth of the produce of the kitchen-garden. Under ſuch circumſtances as theſe, it may be aſked, who is the farmer who would not feel himſelf aggrieved?

Many plans have been ſuggeſted, in order to bring about an arrangement of tithes, and to place them on ſome permanent footing. It has been propoſed, that the proprietors ſhould farm the tithes in each pariſh, or that a corn-rent ſhould be fixed by the average price of grain for a number of years paſt; but that which appears moſt likely to meet general approbation, and which ſeems beſt calculated to do juſtice to all parties, is to give the clergyman a compenſation for his tithes in land, becauſe the depreciation in the value of money has been ſo great, as to render any arrangement which is to be founded on it as a medium by which the value is to be aſcertained in future times, very uncertain; whereas the produce of land muſt always bear reference to the value of money at the time.

Whether the open field pariſhes are to be incloſed, or allowed to remain in their preſent ſtate, ſtill it is humbly ſuppoſed, that a general arrangement might be made reſpecting the tithes, by giving a

compenſation

compenſation in land; and that upon the ſame principles, in which thoſe who act, as commiſſioners under incloſing bills, determine theſe matters, which is generally by finding the clergyman entitled to one fifth or one ſixth of the tillage land, and one ninth of the paſture, or two thirteenths of the whole pariſh.

Were this deſirable object by any means obtained, improvements in agriculture, and the different breeds of ſtock, would no doubt take place; and inſtead of the clergyman and his pariſhioners living in a ſtate of contention, or warfare, we ſhould ſee them living as one great family, in harmony and peace, and the clergyman conſidered as the parent and preſerver of that bond by which they are united.

Want of Leaſes.—Next to the modes of culture, and the management of ſtock, which *muſt* according to the preſent ſyſtem be univerſally practiſed in the open field lands, and the collecting of tithes in kind, nothing can operate ſo powerfully againſt the ſpirited exertions of farmers, in regard to the introduction of better modes of cultivation, and greater attention to the improvement of the different ſpecies of ſtock, than the *want of leaſes.*

Every farmer who poſſeſſes a farm from year to year, muſt feel *that kind of dependence* which muſt tend in a greater or leſs degree to damp his ſpirit for improvement, and muſt prevent him from doing that juſtice to his farm, which would enable him to pay the higheſt poſſible rent to his landlord, or to procure that *fair profit to himſelf,* to which the extent of capital ſunk in carrying on the operations of the farm, and his own induſtry, are entitled.

In ſuch a ſituation, the *prudent* farmer muſt be reſtrained from any ſpirited expenditure, however much he may be ſatisfied that the improvements which might thereby be introduced, would, under other

other circumſtances, prove beneficial both to his landlord and himſelf.

In every country where improvements have been ſucceſsfully and extenſively carried on, leaſes have been granted, and every proper and reaſonable encouragement given to the tenants; and where this mode of letting lands on leaſe has been introduced, the proprietors have in every inſtance found it for their intereſt to purſue the ſame plan; becauſe they ſaw that the tenants, feeling themſelves poſſeſſed of an intereſt in the improvement of the ſoil, beſtowed every degree of attention on that object, and the landlord, at the expiration of the leaſe, conſidering himſelf juſtly entitled to derive ſome advantage from the exertion and induſtry of the former tenant, to whom he had given this aſſurance, demands and receives an additional rent. The beſt proof, in this caſe, that granting leaſes is the moſt probable means of ſecuring the improvement of farms, is to refer to the particular diſtrict now under review, where it will be found, that it is only on theſe farms where leaſes are granted, that improvements are carried on to any extent.

It is true indeed, that few inſtances have occurred here, where the proprietors have not behaved to their tenants with that honour and good faith becoming their rank and fortune. Yet there are inſtances where tenants have been obliged *repeatedly* to agree to pay an advance of rent, rather than remove, while, from the uncertainty of the tenure on which they held their farms, they were debarred from making theſe exertions, which an advance of rent demanded, and which always happens in ſuch caſes when leaſes are granted.

While the proprietors remain ſatisfied with the rents which they receive, (which in general are high enough under the preſent circumſtances), it is not probable that any material alteration will take place, either in regard to the manner of letting the land, or

the ſyſtem of agriculture. But if a general riſe of rent ſhould take place, it will be neceſſary to ſecure the tenant that permanent intereſt in the farm, which will entitle him, with propriety, to adopt thoſe means of improvement which will enable him to do juſtice both to the landlord and himſelf. It may be added, that if leaſes were granted on a reaſonable advance of rent, and for 19 or 21 years, the community at large, as well as the individuals more immediately intereſted, would be benefited thereby; and this particular diſtrict, which is ſo favourably ſituated, would, in a few years, be one of the beſt cultivated in the kingdom.

IMPROVEMENTS SUGGESTED.

From the preceding account of the modes of cultivation adopted in this diſtrict, it appears that about one third of the tillage lands have been for ages, and are ſtill continued, under a conſtant courſe of corn-cropping. It is not neceſſary to point out at greater length the impropriety of an adherence to this ſyſtem, nor to recapitulate the reaſons ſtated for recommending ſo ſtrongly an alteration in the management of the commons and woodlands. What has been already ſtated, will, it is to be hoped, induce the proprietors, and thoſe immediately concerned, to turn their attention to thoſe objects, and their own good ſenſe, more than any thing that can be ſtated in a report of this kind, will enable them to adopt ſuch meaſures, as are moſt likely to promote the improvement of the country, in theſe reſpects.

There is a very ſmall proportion of what may be called the old incloſed lands at preſent under the plough, and whether it is owing to that univerſal prejudice which has long prevailed among landlords, againſt the breaking up of old paſture fields, to want of activity in the occupiers, or to the improper manner in which they were at firſt laid

down to grafs, it is not neceffary here to determine; but it muft be obferved, that thefe lands are not at prefent devoted to the moft profitable purpofe to which they might be applied, being in many places greatly over-run with ant-hills, and producing a coarfe and unwholefome fort of herbage. Thefe lands would, no doubt, be made much more productive by plowing, artificial manure, and other means of improvement that might be adopted. Two objections naturally occur in the mind of the landlord againft plowing up thefe old inclofures, as they are called: The 1ft is, That the tenant would receive a great additional advantage by the luxuriant crops of grain which he would reap, and without making any additional acknowledgment to the landlord; and the 2d is, The rifk which the landlord runs, that the tenant will not beftow due pains in laying down the fields again into grafs. But, if the fyftem is a good one, (and the practice of almoft every other country proves that it is), thefe two difficulties may be eafily obviated, as the landlord may ftipulate with the tenant, for an advance of rent during the period when the lands are in the courfe of corn-cropping, and he has it completely in his power to punifh the tenant for any act of impropriety he may be guilty of, in regard to the manner of laying down the lands into grafs.

The new inclofed lands are in general well managed; and where the foil is of a reddifh colour, with a fmall mixture of gravel, (of which there is a confiderable extent, particularly towards the middle and upper parts of the county), the rotation of cropping practifed, that of the one half in grafs, and the other half in corn and turnip, feems the beft adapted for keeping it in a high ftate of cultivation, and the alternate courfe of corn and grafs hufbandry, is probably the moft advantageous that can be introduced, both for landlord and tenant; as, from the great number of fheep which can be kept upon the artificial

artificial food, produced on a farm, consisting of a proportionable quantity of this kind of land, the occupier is enabled to relieve and assist his natural pasture grounds, as circumstances and the seasons may require. And this mode of management seems also best calculated to enable the tenant to pay the landlord the greatest possible rent, while it prevents him from suffering those inconveniencies which must necessarily happen by the fall of prices, to that farmer who can carry to market one species of commodity only.

To a person acquainted with the best modes of cultivation adopted in all the more improved parts of Scotland, where every kind of soil, from the light lands of Norfolk, to the strong clays of Lincolnshire, are to be met with, it must appear surprising to see a man and a boy, with four or five horses, employed for the greatest part of a day, in plowing an acre of land, while in almost every part of North Britain, the same operation is performed in less time by a man and two horses, without a driver.

If neat light ploughs, with cast-iron mould-boards, were introduced, there is no doubt but a man with two horses, would do the same work which they now perform with double the number, and to as good purpose. It is, therefore, worthy of the attention of those proprietors who take a pleasure in cultivating a farm on their own estates, to make the experiment; for it is a well known fact, that by lessening the expence of cultivation, the tenant is enabled to pay a higher rent; and a great proportion of what is saved in this respect goes ultimately into the landlord's pocket.

For the same reason, it may be proper to recommend the introduction of the machine now so generally used in Scotland for threshing grain; and which, from several years experience, has been found to execute the work to much better purpose than can

be performed by manual labour. It is worked either by 2 or 4 horſes, where water cannot be procured; and it will threſh from 20 to 40 buſhels in an hour, and ſeparates the corn from the chaff at the ſame time; while the ordinary ſervants on the farm are ſufficient to put the unthreſhed corn into the machine and carry off the ſtraw. The expence of theſe machines, on an average, does not exceed L. 80; and the intereſt of money, and annual tear and wear, may be reckoned at L. 10 a-year. In a country where the threſhing of 120 quarters of grain coſts that ſum, the introduction of ſuch a machine as this muſt be a great improvement.

CONCLUSION.

In the preceding Report, every degree of pains has been taken, in order to give a faithful account of the preſent ſtate of huſbandry in this county; and while, on the one hand, the defects in the modes of cultivation, and the manner in which the operations of huſbandry are in general conducted, have been freely mentioned; on the other, ſuch as appeared to be the great outlines for improvement, have been pointed out; and after ſtating that a ſpirit for improvement is certainly introduced among all ranks in this country, and which, if properly encouraged, by the removal of thoſe obſtacles which muſt ever operate as a bar againſt the general introduction of ſpirited agriculture, cannot fail to be attended with the moſt beneficial conſequences, in every point of view. It therefore remains only to make thoſe acknowledgments which are ſo juſtly due, for the aſſiſtance received from many reſpectable Noblemen, Gentlemen, and Farmers, whoſe polite attention, and friendly manner of communicating their ſentiments on every ſubject connected with the ſurvey, rendered the employment in every reſpect ſatisfactory and agreeable.

APPENDIX.

COMPARISON between the ENGLISH and SCOTCH Syſte Huſbandry, as practiſed in the Counties of NORTHAM and PERTH.

HAVING been directed by the Preſident of the Board of Agric to draw up a comparative ſtatement, of the different modes c bandry, practiſed in the county of Northampton, which is ſituated in the centre of England; and that of Perthſhire, lying near the ce Scotland,—it may be neceſſary to ſtate, for the information of an I reader, that the county of Perth is the Yorkſhire of Scotland in p extent, and pretty ſimilar to the Weſt Riding of Yorkſhire, and We land, in reſpect to ſurface and general appearance, there being bleak barren mountains, and extenſive lakes, in each of theſe coun

The Carſe of Gowrie, which may be very properly denominat Garden of Scotland, is ſituated in Perthſhire. This is a track of ric clay land, containing about 30,000 acres, ſuperior in fertility to Scotland, and not to be ſurpaſſed by any of the ſame extent in En

In order to form a correct idea of the rural economy of the t ſtricts, prior to the introduction of improvements in the modes of culture in either, it may be proper to obſerve, that previous to t 900, the ſtate of ſociety in England and Scotland, appears to hav pretty much the ſame.

About that period, King Alfred divided the kingdom of Engla tithings and hundreds; and the honeſt inhabitants of every vill townſhip, became by that law anſwerable, in their own private f and property, for all the houſe-breaking, robberies, and other de tions, committed within their reſpective diſtricts, and were alſo bo aſſociate with their neighbours in arms, in order to repreſs every violence, and to maintain peace and public order. In Scotland, the laws came to be properly reſpected, or the executive governme ſeſſed that power and authority, neceſſary to prevent the great feu rons, and their dependents, from haraſſing and diſtreſſing their leſs

:ighbours, it was common for the farmers, who then lived in villages, ter into an agreement, called a *bond of good neighbourhood*, in which :ts which could be construed into bad neighbourhood were narrated, certain penalties annexed to the commission of each, and from the manner in which they occupied the lands, (which was the same as ll practised in the open field parishes in England), as well as from onditions contained in these bonds, they were induced to turn out ms, on any general invasion of their property.

his being the ancient state of both countries, and it being well known a regular Government, together with the arts and habits of civilized ty, and improvements in Agriculture, were much earlier introduced England than into Scotland, it may appear difficult to account for the ber in which both countries are now inhabited. In England the ers still living crowded together in villages, as in former times; where- a the cultivated parts of Scotland, every farmer lives in the centre of wn farm, as if the feudal system had never existed. But that dif- ty will be removed, when, on the one hand, the manner of culti- g the open field lands in England is considered, and that inclosing nly come into general practice of late years; and, on the other, that does not appear to have been any commonable lands in Scotland; since the year 1560, the payment of tithes in kind (except in a very instances, and these where the tithes are in the possession of lay pro- tors) have been abolished, and that the lands were in general posses- by great proprietors, who, when ever they were inclined, had it in r power, for the reasons just now mentioned, to divide their lands, make such arrangements with their tenants as they judged most to promote the improvement of their estates; and that where a hip was possessed by two or more proprietors, in place of a tedi- gotiation with the Clergyman, and those having right of com- e, and an expensive application to Parliament for an inclosing bill, is the case in England, the division of such lands, was effected action or process before a Court of law, (which was attended with expence), or amicably settled, by a reference to some man of re- ble character in the neighbourhood.

he following statement, attention has been paid to reduce all the s therein mentioned, to the standard of the weights and measures ally used in England, and the rents and returns in both countries, alculated by the English acre, and by the Winchester bushel of 8 gallons.

gallons. It may be neceſſary, however
tute acre contains 4840 ſquare yards, a
ſquare yards. A quarter, or eight W
cubic inches. The boll of barley or o
the ſtandard of Scotland), contains 1:
wheat or beans meaſures 8789 cubic in

LEAS

NORTHAMPTON-SHIRE.

In this county, there are ſcarcely any lands held by tenants under leaſes, except thoſe granted by the Biſhop, Dean, and Chapter of Peterborough, which are for 21 years, renewable every 7.

The tenants, in general, poſſeſs their farms only from year to year. There are, however, written agreements entered into between the landlords and tenants, in which the mode of cropping the lands is ſpecified.

The farm-houſe and offices, are generally kept in repair, at the joint expence of the parties; though, in a great many inſtances, the whole expence reſts with the tenant.

The tenant, is, on all occaſions, expreſsly debarred from breaking up any old paſture-graſs, and from ſelling hay or ſtraw.

The term of entry, to a grazing farm, is at Lady-day, and to tillage lands, at Michaelmas.

The ſize of the farms is much the ſame in both counties.

VATIONS.

led ſo much, to the general introduction
which have taken place in Perthſhire,
anting leaſes for a conſiderable number
t, and enterpriſing tenants.
ıres, ſuch as lime and marl, have come
n conſequence of receiving a leaſe for
ɔy acquires a permanent intereſt in the
commences his operations in the moſt
ways drains, and limes, or marls, that
ıllow, during the firſt courſe of the rota-

ıire, who holds his farm from year to
ed in the honour of his landlord, if he
ind of artificial manure, (which, though
or on any other means of improvement,
annot be expected. And it is a certain
d rather pay 3 s. or 4 s. *per* acre of addi-
d in Northamptonſhire, on a leaſe of 19
ıd hold the farm on ſuch an uncertainty,
from cultivating it to the beſt advantage.

ND TAXES.

PERTH-SHIRE.

The rent of lands in the Carſe of Gowrie is from 30 s. to 45 s. *per* acre, average about 35 s.

For lands in the open field ſtate, from 10 s. to 16 s. medium, about 13 s.

For incloſed lands, which are all cultivated in an alternate courſe of corn and graſs huſbandry, 22 s. *per* acre may be reckoned the medium rent.

The rents in the Carſe of Gowrie are paid partly in money, and partly in wheat and barley.

In other parts of the county the rents are paid in money, and either at Martinmas, (about the 22d of November), after reaping the crop, or, the one half at that term, and the other half at Whitſunday following.

ıed by the tenant, from his ſuperior management of a farm, as well as what he ſaves, by leſſening the expence of cultivation, ſooner or later, ls its way into the landlord's pocket.

CLIMATE.

Periods at which ſeed-time and harveſt commenced in the different unties, for the ſix preceding years, from 1788 to 1793 incluſive.

NORTHAMPTON-SHIRE.

ıE periods at which ſeed-time and veſt commenced on a particular farm his county for the ſix preceding years, 1788 to 1793, will be found in the owing Tables:

PERTH-SHIRE.

Below is an account of the periods at which ſeed-time and harveſt commenced on a particular farm in the Carſe of Gowrie, from 1788 to 1793, incluſive.

	Spring Corn.	Barley.	Harveſt commences.	Years.	Wheat.	Spring Corn.	Barley.	c
			4th - Aug.	1788.	11th Sept.	7th April.	6th May.	2
			18th ditto.	1789.	11th ditto.	6th ditto	9th ditto.	2
			16th ditto.	1790.	13th ditto.	3d March.	6th ditto.	2
	5th Mar.	11th Mar.	8th ditto.	1791.	14th ditto.	7th ditto.	4th ditto.	1
	1ſt ditto.	15th ditto.	13th ditto.	1792.	4th Oct.	9th April.	7th ditto.	2
pt.	28th Feb.	21ſt ditto.	1ſt ditto.	1793.	10th Sept.	25th Mar.	3d ditto.	2

OBSERVATIONS.

By the above ſtatement, it appears, that there are about 15 days difference in the commencement of harveſt, in favour of Northamptonſhire, on average of theſe ſix years.

The climate in the Carſe of Gowrie, may be conſidered as equal to that any other part of Scotland. And that of the other parts of Perthſhire, ſuperior to the northern counties of England.

ROTA-

ROTATION of CROPPING, moſt g
in each of the Counties, for raiſing t

NORTHAMPTON-SHIRE.

The old incloſed lands are generally kept in a ſtate of paſturage.

The open field lands, at leaſt that part of them which is conſidered proper for tillage, is under a conſtant courſe of corn-cropping, as follows, *viz.*

1ſt year, fallow or turnip.
2d —— wheat, part barley.
3d —— beans, with a few acres in oats.

The new incloſed lands are principally employed in the cultivation of grain, and cropped in the manner under mentioned, *viz.*

1ſt year, fallow, part turnip.
2d —— wheat, barley after the turnip.
3d —— beans or peaſe.
4th —— barley, with 18 lb. red clover.
5th —— clover.
6th —— ditto.
7th —— part beans, and part oats.

OBSERV

Without aſſerting that the rotations
grain cultivated in Perthſhire, or on t
tonſhire, are the beſt adapted to the

that can be introduced, it may be proper to obſerve, that the lands ſuch management, are much more likely to produce valuable crops, of grain and graſs, than if they were allowed to remain always in , or kept in a conſtant ſtate of tillage. Experience has indeed d, that the beſt land in Northamptonſhire, when allowed to remain in graſs, is apt to be over-run with ant-hills, and to produce but very ferent crops. And it is preſumed, it will not require much reaſoning ove, to the ſatisfaction of every intelligent farmer, that lands which ept conſtantly under a courſe of corn-cropping, muſt be worn out exhauſted, to ſuch a degree, as to render the crops of little value, pared to what might be expected on the ſame lands, if managed acing to any of the rules above mentioned.

ERAGE RETURN *per* Acre, of the different Species of Crops, in e different Counties, for the ſame number of Years, from 1787 to 792, incluſive.

THAMPTON-SHIRE. PERTH-SHIRE.

Barley.	Oats.	Beans.	General average by the acre of all these grains.	Years.	Wheat.	Barley.	Oats.	Beans.
Buſh.	Buſh.	Buſh.	Buſhels.		Buſh.	Buſh.	Buſh.	Buſh.
$28\frac{2}{7}$	$43\frac{2}{7}$	20	$30\frac{1}{4}$	1787.	$21\frac{1}{7}$	$32\frac{2}{7}$	$42\frac{2}{7}$	$25\frac{1}{3}$
29	33	21	$27\frac{1}{4}$	1788	$22\frac{2}{7}$	$46\frac{1}{7}$	54	21
34	$53\frac{2}{7}$	26	$33\frac{1}{4}$	1789.	$29\frac{1}{7}$	$32\frac{2}{7}$	$43\frac{1}{3}$	$18\frac{2}{7}$
$35\frac{2}{7}$	48	$22\frac{2}{7}$	$32\frac{1}{4}$	1790.	$21\frac{4}{7}$	$39\frac{2}{7}$	53	22
$31\frac{1}{3}$	39	$20\frac{1}{3}$	$28\frac{3}{4}$	1791.	$24\frac{2}{7}$	48	$48\frac{1}{7}$	35
$27\frac{1}{3}$	35	20	$27\frac{1}{4}$	1792.	$24\frac{2}{7}$	$24\frac{2}{7}$	$37\frac{2}{7}$	16
186	252	130	180	Div. by 6.	144	224	279	138
31	42	$21\frac{2}{3}$	30	General Average,	24	$37\frac{1}{3}$	$46\frac{1}{3}$	23

OBSERVATIONS.

the above table, it appears, that the returns by the acre of the dif- ſpecies of crops, except wheat, is in favour of Perthſhire, or ra-

ther the Carſe of Gowrie; for the calculation is formed fi
a particular farm in that diſtrict, though it ſhould be ol
farm is not cultivated agreeable to the rotation above
derably more than one-fixth of it being annually under
of which is ſown after peaſe, or clover ſtubble; and t
muſt be ſuppoſed inferior to what might be expected,
reaped, from lands regularly fallowed and dunged, eitl
other farm in that corner of the county.

AVERAGE PRICES by the Buſhel, at which Wh
and Beans, were ſold off a particular Farm in each
for the Years above mentioned.

NORTHAMPTON-SHIRE. P

	1787.		1788.		1789.		1790.		1791.		1792.		General average.			1787.		178
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.		s.	d.	s.
t,	5	5½	5	8½	6	4½	6	6½	6	3½	5	10¾	6	0½	Wheat,	5	5	5
,	2	6½	2	6¾	2	7½	3	3	3	1½	3	4½	2	11	Barley,	2	5	2
	2	0½	1	10¾	1	8¾	2	4	2	5½	2	6¾	2	2	Oats,	2	5½	2
,	3	7½	3	8¾	3	6	3	11	3	10½	4	1½	3	9	Beans,	3	1½	2

OBSERVATIONS.

It appears that the price of oats is higher in Perthſhire
tonſhire, but that all other kinds of grain, ſell higher in
county. That the price of oats ſhould be higher in Scot
land, will not be thought ſurpriſing, when it is conſide
great body of the inhabitants live principally on oat-mea
land, the bread generally uſed is made of wheat flour.
the prices of the other ſpecies of grain in favour of Nort
be accounted for, by obſerving, that Northamptonſhi
cloſely inhabited than any other county in England, wh
or large manufacturing towns are ſituated, and that ther
general find a market for their grain at home, or in the

rhood; and that though the Carse of Gowrie, properly so called, is as sely inhabited as Northamptonshire, yet the inhabitants of Perthshire ar no proportion to those of Northamptonshire, when the extent of the o counties are compared, and therefore the Perthshire farmer, must k to a distant market for the sale of his surplus grain, which he gene-ly finds at Leith or Glasgow, and which he avails himself of by means the Frith of Tay, and the inland navigation which is opened between e Forth and Clyde, by which grain is transported from this last men-ned county, to Glasgow, which is the best market in Scotland. But e farmer in Perthshire, must be at an expence greater perhaps than the ference above stated, in conveying his grain to the best market; or, ich is the same thing, must sell his grain on terms so much lower, as to ble the merchant to transport it with advantage to himself.

DIFFERENCE of the Value of the returns by the Acre, in each of the Counties.

NORTHAMPTON-SHIRE.				PERTH-SHIRE.			
½ bushels wheat, the produce of one acre, at 6 s. 0½ d.	L. 7	13	0¾	24 bushels wheat, the produce of one acre, at 5 s. 4½ d. -	L. 6	9	0
bushels barley, at 2 s. 11 d.	4	10	5	37⅓ bushels barley, at 2 s. 8¾ d.	5	1	11
ditto oats, at 2 s. 2 d.	4	11	0	46½ ditto oats, at 2 s. 6½ d.	5	18	2
ditto beans, at 3 s. 9½ d.	4	1	6¼	23 ditto beans, at 3 s. 5 d.	3	18	7
Total average *per annum*,	L. 20	16	0	Total average *per annum*,	L. 21	7	8

OBSERVATIONS.

From the two first tables the above one has been formed, in order to the extent and value of the returns by the acre, in each of these ties, for a number of years, and by which it appears, that the balance n favour of the Carse of Gowrie, to the extent of 11 s. 8 d. on four es, or 2 s. 11 d. on each acre.

It was not possible to ascertain correctly, the weight of the crops of hay ed on the acre in Northamptonshire; but from the information re-ved, 18 cwt. may be considered as the full average of meadow-hay, about 25 cwt. that of artificial grass.

In the farm in the Carse of Gowrie, above mentioned, the average of hay by the acre, for 6 years, is nearly 29 cwt. There are no natural

natural meadow-fields in this diſtrict, Perthſhire, except in the valleys, and al vers in the Highlands, where, owing to great falls of rain to which that counti hay are often very precarious.

LABO

The PRICE of LABOUR

NORTHAMPTON-SHIRE.

Butcher-meat, from 4 d. to 5 d. *per* lb.
Poultry, from 1 s. 2 d. to 1 s. 4 d. each.
Eggs, - 6 d. to 8 d. *per* ſcore.
Butter, - 8 d. to 10 d. *per* lb.
Cheeſe, - 4 d. to 5 d. *per* do.
The wages of a ploughman, from L. 8 to L. 10.
A young man or boy, from L. 4 to L. 5.
A female ſervant, from L. 3, 10 s. to L. 4, 10 s.
Day labouring in ſummer, without board, from 1 s. 2 d. to 1 s. 4 d.
Ditto in winter, 10 d. to 1 s.
A man for the harveſt month, from L. 2, 2 s. to L. 2, 10 s.
A woman by the day, 1 s. without board.
Grain is threſhed at from 1 s. 3 d. to 2 s. 6 d. *per* quarter.
When the ploughmen receive board-wages, it is generally at the rate of 6 s. the week all the year round; but they are more commonly maintained in bed, board and waſhing in the farmer's family.
The ordinary breakfaſt and ſupper is cold meat, with bread and cheeſe, and for dinner, either roaſt or boiled meat, with pudding. Ale is allowed them on many occaſions, and ſmall beer they have always at command.
Labour commences about the ſame hour, at the different ſeaſons, in each of the counties.

OBSERVATIONS.

rom the above ſtatement it appears, that the odds in the price of labour provisions is much leſs than could have been expected. The only erial difference being in the maintenance of the farm-ſervants.

Northamptonſhire farmer conſiders 6 s. *per* week as a reaſonable al-ance for the board of a ploughman, which, for 52 weeks, amounts - - - - L. 15 12 0

he Perthſhire farmer furniſhes his ploughman with that ntity of oat-meal, which, on the average price of meal number of years, amounts to 2 s. *per* week, to which, if *per* week is added for milk, makes the whole expence he year - - L. 7 7 4

or coals, bed-cloaths, *&c. &c.* may be added, 0 9 8

7 17 0

L. 7 15 0

hus, in conſequence of the different modes in which the farm-ſervants maintained in the different counties, the Perthſhire farmer ſaves about 15 s. a-year for each of his ſervants, which the other muſt expend. There probability, however, that the Northamptonſhire farmer can avail elf of any information he may receive in regard to this particular, is ploughmen will not be diſpoſed to give up their roaſt beef and pud-, and betake themſelves to oat-meal and milk. But it is humbly ſub-ed to his conſideration, whether he might not leſſen the expence of ating his farm, by reducing the number of ſervants and horſes. practice of plowing with a man and 2 horſes, without a driver, is al, not only in Perthſhire, but all over Scotland. Whereas, in Nor-ptonſhire, a man and a boy, with 3, 4, or 5 horſes, are employed to gh an equal quantity, which, for the ſake of calculation, may be oned at an acre a-day in both counties; and let it be ſuppoſed alſo, theſe men and horſes are employed in plowing the whole year round, hich period they will each have plowed 313 acres,—in that caſe the ent accounts of the expence would ſtand as under.

NORTHAMP-

NORTHAMPTON-SHIRE.

Ploughman's wages,	L. 10	0	0
Boy's wages, -	5	0	0
Boy's board, at 4 s. *per* week,	10	8	0
Maintenance of 4 horſes, at L. 15 each, -	60	0	0
	L. 85	8	0

By the above account, including onl
the maintenance of the horſes, which a
pence of plowing an acre of land in N
5 s. 6 d. while the ſame operation is as
Gowrie, or in any other part of Perthſ
ference of 3 s. *per* acre; but as a great
plowed on every farm, in a ſtate of ti
tains, (ſome fields being repeatedly pl
plowing a farm in Northamptonſhire,
power of every farmer in that county t
6 d. *per* acre. *N. B.* It is hardly neceſ
culation includes only ſuch articles as
not the *whole expence* of plowing an a
marked, that the total annual expenc
land in either county, is very different
particular explanation of this, referenc
port of the Carſe of Gowrie, where it
tivating a farm of 272 Scotch acres, ex
6 s. 4 d. or L. 2 : 8 : 4 *per* Scotch acre.

PLANTATIONS.

PERTH-SHIRE.

This county cannot *now* boaſt of foreſts or woodlands. Though from the great number of large oak and fir trees which are found in all the moſſes and ſwamps in the higher parts of the country, it is perfectly certain, that at ſome remote period, a great part of the diſtrict has been covered with trees; the only veſtiges of which that now remain, are ſeveral extenſive tracts of copſe-wood oak, along the ſides of the different rivers and lakes, which are generally cut every 25 years.

The preſent landholders, however, ſeem extremely anxious to make up for the deficiency of their predeceſſors in this reſpect. And many thouſand acres (not ſuſceptible of cultivation), are now covered with uſeful and ornamental plantations. As one inſtance of which, may it be proper to obſerve, that the Right Honourable Lord Kinnaird, a few years ago, paid L. 800 for planting 200 Scotch acres. The plants conſiſted of oak, aſh, beech, elm, plane, ſpruce, and Scotch fir, and to the number of 5000 to the acre.

VATIONS.

the woodlands in Northamptonſhire, it
f trees can be preſerved, and the foreſts
e ancient foreſts in Perthſhire, though
v deſtitute of trees. And indeed there
county, except the ornamental planta-
es, of the proprietors.
to preſerve a ſucceſſion of trees in Nor-
for planting, which has become ſo gene-
tors of late years, ſhould continue, the
contraſt

contraſt in this particular (which is at
thamptonſhire) will not long continue t

LIM

NORTHAMPTON-SHIRE.

There is abundance of limeſtone in almoſt every corner of the county; yet, except for the purpoſes of building, very little is manufactured in the diſtrict. Though in kilns properly conſtructed, it can be burned on terms ſo low as to enable the manufacturer to ſell it at the rate of 4 d. or 5 d. *per* buſhel.

OBSERVA

The value of lime as a manure is we
fects in producing great crops both of
of upwards of 50 years) have been aſce
farmer in the diſtrict.—The quantity
in general (reckoning that every buſh
of powdered lime) is about 380 buſhel
coſt *per* Engliſh acre is about L. 2 : 7 :
land in the courſe of a fallow, as a pre
ly done in the month of July, or beg
with a very ſhallow furrow; and befor
is generally in September), about 24 l
alſo laid on the acre. The dung-carts
nearly as large as thoſe uſed in Nortl
ſtrict of the Carſe of Gowrie alone, wl
contain above 30,000 Engliſh acres, li
num, has been imported for the laſt
indeed almoſt wholly, uſed as manure.

In Northamptonſhire, though lim
pariſh, it has hitherto been but part

er it is that the experiments which have been made, have not been ju-ciouſly conducted, or that the farmers, from the want of leaſes, are pre-nted from expending money in the purchaſe of a manure, from which immediate return can be expected; certain it is, that there does not pear any great probability of its being ſoon introduced into general uſe, ithout the united exertion of the landlords.

COMMONS and WASTE LANDS.

NORTHAMPTON-SHIRE.

It is only in thoſe pariſhes in this county ich have been incloſed that the lands held in ſeveralty. The open field ſhips are held both by proprietors tenants, in the ſame manner as was practice at the time they were firſt ivated. And there, what in Scotland alled *run-ridge*, or *run-field*, univerſal-prevails. To the preceding report re-ence is made to an account of the man-in which the commons and wood-ds are occupied.

PERTH-SHIRE.

In this county the lands are all held in ſeveralty; and commons, or what was formerly known by the name of *run-ridge* property, is ſcarcely known; even in the rocky and mountainous parts of the country, where the ſurveyor cannot drag his chain, every proprietor knows the bounds of his own eſtate; and where ar-tificial boundaries cannot be fixed, natu-ral ones, ſuch as ſtreams of water, or the ſummits of mountains, are made uſe of to aſcertain the marches.

OBSERVATIONS.

The abolition of *run-ridge* or *run-field*, may be reckoned the firſt dawn of ſpirit for improvements in Agriculture that appeared in Scotland, and ich, added to another excellent plan adopted by the landlords, which has already taken notice of, *viz*, that of granting leaſes, accounts in a great ſure for the very great improvements which have lately taken place hat kingdom; and it cannot admit of a doubt, that were the open pariſhes in Northamptonſhire divided and incloſed, and the com-ns and woodlands converted into private property, in the manner in ich the lands in Perthſhire now are, the moſt ſubſtantial improvements uld of courſe be introduced; and the produce of the lands, under ſuch rior cultivation, as would in that event take place, become greatly e abundant.

HARVESTING

HARVESTING

NORTHAMPTON-SHIRE.

In this county the wheat is reaped with ſickles, and the barley, and oats, and beans are mowed with the ſcythe, and after being turned over are put up in coles in the field, like hay, where they ſtand ſome time, and are afterwards carried home, and either put into the barns, or built and thatched in the ſtack-yard.

The wheat is cut very high from the ground, and being bound up in ſheaves, is allowed to remain in ſhocks in the field till it is ready to be houſed; and after that is done, the ſtubble is cut with ſcythes, and carried home to the ſtraw-yard, where it is either uſed for litter, or for thatching houſes.

OBSERVA

There is no operation of huſbandry
rence than in the manner of harveſti
ties, as appears above.—The mode ac
doubt requires more hands to be emplo
cut down in the ſame ſpace of time.—
more completely, and all at once, may
ing with the Northamptonſhire farmer
the rate of wages and board-wages to b
ful. Certain it is, that were the Nor
county, it would be attended with g
later, by which means, in bad harveſts,
falls of rain which ſometimes take place
pains which is generally uſed to ſet
calculated to defend the grain from inj
conſideration of the farmers in both
not practicable to lay the corn from the
could be eaſily bound up into ſheaves.
ble that the Northamptonſhire farmer

ntity of grain, which is at present lost among the stubble, after every tion that can be used in raking the field; and, on the other hand, the thshire farmer would be enabled to accomplish the work in a shorter od, and to as much purpose, while he would be relieved from the ne- y of trusting to people from the remote parts of the country, for cut- down his corns.—Such an invention as this just now mentioned has found out, and is said to be very simple in its construction, being ng more than a piece of pliable wood, formed into a kind of bow, nd fixed on the scythe, and the other on the handle.—If it is found wer in practice, it will certainly be an improvement of real utility.— scarcity of hands was probably the first cause that induced the Eng- farmer to use the scythe in cutting down his corns;—and that cause nduced some farmers in the neighbourhood of Edinburgh to adopt ame plan this year.

CONCLUSION.

he preceding comparative account of the two counties might have extended to a great many other articles, such as *farm-houses and s, roads and bridges, implements of husbandry*, &c. &c. but as no ma- l difference appears in these respects, it was judged unnecessary to en- nto a minute detail of the particulars in either county. It may ap- surprising to some readers, that no account is given of the live stock ese counties; but without extending that article to a great length, s found impossible to state any thing on the subject that would have ed in any great degree to information.—Suffice it therefore to say, n both counties there is yet great room for the active and intelligent r to introduce improvements in the breeds of the different species of Such a spirit has, however, become pretty general among the far- in both districts, and which, if aided by the landlords, will no doubt few years produce very beneficial consequences.

is only necessary farther to add, that every endeavour has been used der to execute this commission with candour and impartiality. And *eneral description* of the modes of Agriculture and situation of the ts in each county, will, it is hoped on investigation, be found to be stent with truth.—The time allowed for making the survey of any ular county, is such as to subject the surveyor to the necessity of procuring

procuring much of the neceſſary information from thoſe reſident in diſtrict, without having it in his power to inquire minutely into the ticulars himſelf, and which in this caſe may have been either impro ly communicated or not perfectly underſtood.

If any misſtatement of facts ſhould appear in the preceding count, it is hoped the candid reader will attribute it to the cauſe ready mentioned, rather than to any want of attention on the part of ſurveyor. Any deficiencies that may appear, will no doubt be amply plied by the gentlemen, and intelligent farmers, to whom copies of Report will be tranſmitted by the Board for their remarks and obſe tions.

GENERAL VIEW

OF THE

AGRICULTURE

OF THE

COUNTY OF WORCESTE

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OF THE

COUNTY OF WORCEST

WITH

OBSERVATIONS ON THE MEANS OF ITS IMPROVEME

BY WILLIAM THOMAS POMEROY,

OF FAIRWAY, NEAR HONITON, IN DEVONSHIRE.

Gt Brit. DRAWN UP FOR THE CONSIDERATION OF

THE BOARD OF AGRICULTURE AND INTERNAL IMPROVE

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M.DCC.XCIV.

[ENTERED AT STATIONERS' HALL.]

TO THE READER.

IT is requested that this paper may be returned to the Boa Agriculture, at its Office in London, with any additional Remarks and Obs tions which may occur on the perusal, written on the Margin, *as soon as n convenient.*

It is hardly necessary to add, that the Board does not consider responsible for any fact or observation contained in this Report, which, at pr is printed and circulated, for the purpose merely of procuring farther inform respecting the Husbandry of this District, and of enabling every one to cont his mite to the improvement of the country.

The Board has adopted the same plan in regard to all the other ties in the United Kingdom; and will be happy to give every assistance power, to any person who may be desirous of improving his breed of C Sheep, &c. or of trying any useful Experiment in Husbandry.

London, December 1794.

COUNTY OF WORCESTER.

SITUATION AND SURFACE.

THE county of Worcester is bounded on the east by Warwickshire, on the west by Herefordshire and Shropshire, on the north by Staffordshire, and on the south by Gloucestershire. It is supposed to contain about 540,000 acres.

The face of this county, when viewed from any of the surrounding eminences, approaches rather that of a plain; the gentle slopes and risings to the east and west of Worcester, remaining scarcely any longer discernible. The state of its cultivation appears to very great advantage, as there are no tracts of any considerable extent, so barren, or so totally neglected, as to be without an agreeable, and profitable verdure. On a nearer view, from the central hill, which rises more particularly to the east of that city, a most beautiful landscape presents itself: the whole of the back ground, which, at its greatest distance, does not exceed twelve, and no where approaches nearer than eight miles (allowing something for the openings to the south-west and north), appears to be one continuation of noble hills; forming, as it were, the frame of the delightful picture that presents itself in the centre, diversified with all the beauties of hill and dale, wood and water. If the Aberley and Whitley hills occasion some irregularity in the frame, they will scarcely be thought to take off from the beauty of the piece; these, and the adjoining hills, rising with a bold front, and most of them culti-

vated

vated to their summits, recall to the mind the enthusiastic description of Italy; and the sheep, hanging as it were, from the brows of others, illustrate the much admired idea of the Roman bard.

SOIL.

THE soil is various: to the north of Worcester, which is situated nearly in the centre of the county, it chiefly consists of rich loamy sand, with a small proportion of gravel; there is some very light sand; a few spots of clay; of black peat earth the same; but chiefly inclining towards the east. In this quarter (the east) the prevailing soil is, for the most part, a strong clay. The waste land, which is very considerable, in general a deep black peat earth. To the south, between Worcester and the Vale of Evesham, the soil is partly of red marl, and part strong loamy clay; other parts sandy loam; and there is a small vein of land which partakes of each of these qualities; the sub-soil, more especially under the second division, lime-stone. In the Vale, the soil is particularly deep, of a darkish colour earth, with a sub-stratum of strong clay and some gravel. Beyond this, on the confines of the county, and in the small detached parts, including the Cotswold Hills, a lime-stone prevails on the upper land, and a rich loam on the lower. To the south, between Worcester and Malvern, the general character of the soil, is a clay, mixed with gravel in different proportions; the former prevailing in the lower, and the latter in the higher situations. To the left of this line, including Malvern Chase, a deep surface of clay is found in some places; in others, a rich loam, inclining to sand; sub-stratum supposed to be marl. To the right, till we approach a central point between the west and north, the proportion of clay increases gradually, till at

last, a strong clay occurs; this again becomes gradually more gravelly, till it joins the light sands on the north. Below, partly marl, partly soft sandy stone, with some lime-stone, is found. In each of these districts, some very rocky land, and in most, some loose stony soil, or what is here called stone brush, or brash, is met with; but no where are there any traces of flint or chalk.

CLIMATE.

THE air is temperate; even on its highest situations, it is not so bleak as to considerably impede vegetation; nor are there any extensive tracts in the low lands, of boggy soil, to injure it by their exhalations.

MODE OF OCCUPATION.

THE estates are, in general, tenanted, and mostly by tenants at will, with no other restrictions but those which custom has introduced. The landlords appear, in general, to have great objections to granting leases: when granted, they chiefly are what are called running leases, for twenty-one years, determinable every seven.

The farms are small, from 40l. to 300l. a year; there are certainly more under the former, than above the latter value. The number of gentlemen who occupy land, has increased considerably of late; and some there are, who hold forth very laudable examples of experimental improvement.

The land, if the waste be considered as a part of the pasturage, is, probably, very nearly divided between that and husbandry.

GRASSES.

THE grasses chiefly cultivated to prepare pasture lands, are the red and white trefoil, with a mixture of natural grass-seeds; but very little, with two or three exceptions, is going on at present in this way.

Laying down grass land.—The following excellent mode of laying down grass land, is adopted by Mr. WAKEMAN, of Buckford. Having prepared the land by a good summer fallow, of at least three ploughings, he provides a collection of the choicest of the grass-seeds which are found to flourish most upon the places adjoining to the land intended to be laid down. These seeds are obtained in the proper season of the year, at a small expence. The sorts principally made use of, are the *anthoxanothum odosatum*, the *poas trivialis pratensis et annua*, the *alopecurus pratensis*, the *cynosurus cristatus*, and the white, red, and yellow *trifoliums*, adding to the whole mixture a small quantity of the *lolium perenne*. After having sown the barley, these seeds are combed in with a *light* pair of harrows. By this method, the ground is immediately stocked with native grasses, without waiting years for their spontaneous production. In the winter of the second year, the seeds are covered with a meliorated compost.

LIVE STOCK.

SHEEP, bullocks, horses and pigs, are the stock: of the first species, by far the greatest part are a small sort of sheep, without horns, and with mottled faces, originally from Wales. They are interspersed throughout the county, and occupy almost universally the waste lands. In point of number, those called the Ross sheep, stand the next; most of which are

brought out of Herefordshire, though they are now bred in the western parts of this county: they are short legged, short, but particularly broad, on the back, without horns; their fleeces, for fineness, are supposed to stand unrivalled throughout the kingdom.

There are a breed peculiar to the Cotswold Hills, part of which are in Worcestershire; these are very general in the southern parts; they are without horns, long woolled, and of large size; having broad loins and full thigh, but rather light in their fore quarters. One cross of the Dishly sort, to add to the Cotswold the principal, or, according to some, the only perfection of the Leicestershire, *a good fore quarter*, is found to answer well; but a second cross is said to be injurious: it diminishes the size of the sheep, and the quantity of wool. The sheep of the first cross, when two years and a half old, will weigh from 36 to 40lb. per quarter; the quantity of wool shorn from each sheep, runs from 11 to 14lb. which wool, in 1793, sold at 1l. per tod, of 28lb. to the tod.

There are a few of the Leicestershire breed; their number increasing. Some of the Wiltshire are also introduced; and on the eastern side, the Warwickshire breed prevails.

The bullocks, on the western side, are chiefly of the Herefordshire breed; Staffordshire furnishes some, and indeed, all the adjoining counties. The Earl of COVENTRY has introduced the Holderness breed, with great success; his Lordship's tenant, at Mitton, has some from Devonshire, but they are not of the true breed of that county.

The breed of horses is chiefly confined to those sorts that may be useful in the cultivation of the land; they are, however, much heavier, and of course slower, than appear necessary for that purpose. Perhaps the general construction of the ploughs, and the unwieldy weight of the waggons, together with the badness of many of the parochial roads, may be thought to render them necessary. From the num-

ber of horses kept in Worcestershire, and the quantity of food they devour, it is said that they consume two-thirds of the produce of the land.

The great bar to the improvement of stock in general, is the little attention paid by most, to keep the different breeds of each species distinct.

WATERING LAND.

This beneficial practice has not been much attended to, nor is it generally well understood. The most considerable experiment in this way, has been made in the neighbourhood of Kidderminster, on some farms belonging to the Foley family, which has been attended with very great advantage*; nor have the others hitherto made, proved less successful. From the general aspect of the county, and the numerous brooks and water courses with which it abounds, there is no doubt that this improvement might be carried on to a very considerable extent.

CROPS.

Of the land appropriated to husbandry, nearly an equal quantity is employed in the production of wheat, and barley; rye is likewise sown on the light soils, chiefly to be grazed by sheep; the different kinds of pulse are also cultivated; vetches, both summer and winter, are common; sainfoin has been raised hitherto but in small quantities; oats are sown sparingly, under an idea that they impoverish the land; hemp and flax are likewise grown; but chiefly on small tracts, occupied by little proprietors; a general opinion

* See the Appendix, No. I.

prevailing, though unjustly, that these also impoverish the soil: the unjustness of this opinion, so far as it relates to flax, is asserted most decidedly, and from a very considerable experience. Except in the common fields, no particular rotation of crops prevail: the peculiar circumstances of the seasons, &c. seem to determine, and ought to decide this point.

Clover and turnips are generally cultivated; the latter on the light soils; more especially, where proper attention has been paid to hoeing, they are universally allowed to be the greatest improvement that has been introduced for a series of years. Clover is likewise found to answer very well, and almost always immediately precedes wheat, which is generally sown on what is here termed clover sward, and applied to land occupying clover, after having been grazed one whole summer, and in the autumn broken up for wheat. Fallowing is practised.

MANURES.

THE principal manures are, the production of the stable, farm-yard, and lime kiln, judiciously applied by good farmers, according to the respective qualities of the soil; the latter of these, however, is generally spread over the land without any previous mixture, a habit which requires regulation. Horn-shavings, leather-shreds, ashes, soot, and offal salt from the works at Droitwich, are likewise used. By some, more attention has latterly been paid to making dung-hills, than formerly: soil obtained from ditches, and marl, where opportunity offers, are added, and these are frequently mixed, by turning them together.

INSTRUMENTS OF HUSBANDRY.

THE plough is said to have undergone considerable alteration within these last twenty years. The one in general use, at present, is the hammock plough. Of such as are peculiar to the county, the double plough, which is said to be a native, is still confined to the lighter soils, to the north. A second, is the string plough, composed chiefly of wood; its beam crooked, body long and weighty: this, as far as relates to general use, is now almost exploded; it is, however, still found convenient on the deep red soils intended for hop-grounds, on the Teme side, which are prepared for that purpose as follows:—Two of these ploughs, with a man and boy to each team, are employed, following each other; in every other respect the same, they are differently furnished with iron work; the first, which takes off the sod from two to four inches deep, has the wing (here called the feather) of its share extended, and formed into an edge, which terminates with its point on the right hand side; in this position, it separates the upper from the under roots of the grass. In this plough, particular attention to the edge of the coulter is also paid, that the undermined turf may be so regularly cut, and equally divided, on the surface, as to afford the shield-board, which follows, an easy opportunity of raising it on its edge, and then laying it flat on its back in the furrow—in that which follows, both the share and coulter resemble those which (here) are in common use, with the point of the former tending a little downward; this following, raises the soil from a considerable depth, and covers the whole. A third, is the large straight heavy plough, more especially peculiar to the Vale of Evesham; rather long in the body, and without wheels. On the Cotswold Hills, a plough with one wheel is seen, much on the same construction as those met with in Devonshire, and other western counties. At Cuts-

den, considered as part of these hills, oxen are worked two a-breast, a circumstance which seldom occurs in this county. Most of the modern improvements are partially adopted on the lighter soils, but cannot be considered as making very rapid progress towards a more general use. From the number of heavy horses employed, particularly with the hammock plough, a very fair inference may be drawn, that there is great room for improvement.

The harrows are on the usual construction; the waggons and carts are remarkably heavy, those on the Cotswold Hills excepted, which are considerably lighter.

The sickle for cutting wheat, is said to have been introduced about the year 1750; it is now in general use. The husbandman's tools, on the whole, seem to require much alteration and improvement.

SEED-TIME, AND HARVEST.

THE seed-time for wheat, varies, from the beginning of October to the end of December—for barley, from the middle of March to the beginning of May—pulse, the latter end of February and beginning of March—winter vetches, the latter end of September; those for summer, March, April, and beginning of May; the former are generally found to answer best.

The harvest season, is from the last week in July to the end of August; but the fickleness of the weather frequently drags it on to a greater length.

INCLOSURES.

THE lands are in general inclosed: here are, however, some considerable tracts in open fields. The most extensive

are in the neighbourhood of Bredon, Ripple, and to the east of Worcester. The advantages from inclosing common fields, have been evidently very considerable; some few objections have been started, but they do not appear, on the whole, to have considerable weight: the rent has always risen, and mostly in a very great proportion; the increase of produce is very great, the value of stock has advanced almost beyond conception; in one parish alone, where the quantity inclosed has been pretty considerable, it is stated on unquestionable authority, to have amounted, in sheep and wool only, to full 1000l. a year. The improvements that may be made in stock in general, if properly attended to, are too obvious to be insisted on: it may be said in general terms, that there is but one opinion throughout the county on this subject; indeed it is in inclosures alone, that any improvement in the line of breeding in general can be made.

The average size of the inclosures, is from fourteen to twenty acres, but varying considerably according to the size of the farms; the greatest part of the old inclosures is under this estimate.

The new fences are chiefly made with hawthorn, secured by post and rails; on the Bredon and Cotswold Hills they are of stone. The expence of making them is difficult to judge of with accuracy; but from the supply of materials, which are in most parts plentiful, it may be deemed moderate.

If a doubt is admitted, whether inclosures increase or decrease population, it must depend in this, as in other counties, on the nature of the land inclosed. Where waste land is inclosed, it must obviously increase population; there can only be a doubt, when the question arises respecting common fields. The inclosures in this county have been chiefly of the latter sort, and yet the population is admitted to have increased. Considerable inclosures have been made of late, some by authority of Parliament, others by mutual consent of the parties interested in them; more would certainly take place,

place, were it not for the expence which attends the procuring Acts of Parliament for that purpose. A division of some of the common fields and meadows is under consideration.

WASTE LANDS.

THE waste lands in this county, contain, at a very low computation, from 10 to 20,000 acres: the medium 15,000. They are in general depastured by a miserable breed of sheep, belonging to the adjoining cottagers, and occupiers, placed there for the sake of their fleeces, the meat of which seldom reaches the market, a third fleece being mostly the last return they live to make.

Most of the common, or waste land, is capable of being converted into tillage of the first quality; of this description, Malvern Chase, extending some thousands of acres, and enriched by the soil and manure washed down from the extensive sheep walks on the adjoining hills, and above all, well supplied with the waters of their numerous springs, stands foremost; nor is there in this county (rocks excepted) a part not accessible to the plough, but would produce most excellent timber. As to the present mode of commonage, it is so radically bad, as not to admit of improvement, without a total alteration.

LABOURERS.

THE hours of labour are, from six in the morning to six in the evening, during the summer; in some parts, they are from five till seven, with a proportionate increase of pay:—in winter, from day-break till the close of the evening. During the harvest months, there are no fixed hours of begin-

ning, or leaving work. The average price of labour, with drink (beer, cyder, or perry), is a shilling a day, or fourteen-pence without, at the choice of the person employed. A true idea of the expence of furnishing drink, will not be formed from the proportion the two prices bear to each other, or from what is usual in most other parts: two gallons a day is now pretty generally considered as the fixed allowance to each man. In the harvest months, there is no restriction. In extenuation of this abuse, it is said that a part is taken home to the families; but this, when it happens, may be set down as an exception to general custom. Hired servants have the same.

The price of labour, mentioned above, is to be understood as that of common day-labourers: those who are qualified to undertake, and are entrusted with the care of any particular part of the business, such as the management of feeding cattle, or the care of sheep, receive from ten to twelve shillings a week. Women have six-pence with, or eight-pence without drink. The price of piece-work varies in different parts of the county; the customary daily wages being the rule by which it appears to be regulated. The yearly wages of an able man servant, are from 5l. to 7l. a year, exclusive of diet, washing and lodging; some few, and those chiefly such as are entrusted with the care of the team horses employed on the farm, receive from eight to twelve guineas. Women servants, from 50s. to 4l.

DRAINING.

TAKING the county at large, and considering its advantages in that respect, draining is certainly very much neglected. All the principal farmers are, however, now convinced of its great use, and several have, within the last twenty

twenty years, attempted something in this way; but for want of further information, and a proper discrimination of the nature of the land, and above all, from the little attention paid to the situation and course of the springs, many have not succeeded so well, as by their exertions they deserved to do.

In speaking of under drains, it may be thought right to mention, that various experiments have been made at Ewell-grange, the seat of the Earl of PLYMOUTH, and in that neighbourhood; but that by boring (after ELKINGTON's method) deserves to be most particularly noticed, which indeed in such situations (viz. low, fenny, or boggy lands), seems to supersede the use of every other. The drain to be bored in, is thus made:—the trench is begun almost level with the surface, in that part from which the water can be most certainly and conveniently carried off. In determining its direction, great attention is paid to the situation of the bogs, and to the rising grounds (or perhaps pools) from which they (the bogs) are likely to proceed; the trench is then continued on, varying from a dead level only so much as may be of service in promoting the discharge of the water; when sufficiently advanced into the piece to be drained, an attempt by boring is made, to discover the spring; if successful, and the water is judged to issue in a proper quantity, this part of the business is completed; otherwise the trench (or its necessary branches) is continued on, and the boring repeated at intervals, till it succeeds. The drain is formed of brick made for the purpose, called gutter brick. The brick, the pebbles, and the faggots, which form the drains, at the bottom of the trenches in which they are used, are covered in the usual manner with earth. Some of the old under-ground drains are also made with brick; others with small pebble stones, where they are in plenty; and some, with small faggots of brush-wood.

Of the open drains, that made use of at Croome, the seat of the Earl of COVENTRY, is the only one deserving notice;

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for a description of which, and an account of the great success that has attended it, reference may be had to Mr. DARKS's answers to the queries proposed by the Board (see the Appendix, No. 2), in which many interesting remarks will be found, which do credit to their author.

PARING AND BURNING.

IN Worcestershire, paring and burning has not been much practised, at least, not sufficiently to form a decided opinion of its utility, as it is not by the advantage gained in the crops that immediately succeed, we ought to judge of its permanent use. It has its advocates here; but in Devonshire, where the experiment has been very fully made, on an extensive scale, it is almost given up. A distinction when it will be useful, and when otherwise, may perhaps be made—when old lands are first broken up, on which much is found that will not readily decay, the advantage is obvious; in other situations, it may occasionally be used, though that should be seldom. The frequent practice must undoubtedly, by wasting the soil, prove prejudicial.

WOODS, &c.

THE extensive woods and forests of this county, so very considerable in early times, have almost disappeared. Feckenham Forest has sunk entirely under the continued demands of the salt works at Droitwich; these, however, having been worked for years with coal, that demand ceases. The woods of Hagley and Uffmore, are still of considerable extent, and some idea of the former abundance may be formed as yet, on those parts which border on Herefordshire. Through a considerable

siderable part of the county, small tracts of woodlands are frequent, and they furnish timber, chiefly oak and ash, with some beech, of excellent quality. The hedge-rows are every where crowded with elm, and though the present custom of lopping and pollarding must certainly injure their growth, they often produce timber of considerable dimensions. Elm is considered as the principal growth; there is, however, in many parts, as fine oak and ash as the kingdom produces.—The principal uses peculiar to this county, to which the underwood is applied, are hop-poles, and the making of charcoal for the iron works.

The smaller tracts of woodland are chiefly inclosed, and under the management of the proprietors; some of the larger are thrown open, after a certain number of years from the last cutting; and the freeholders claim the privilege of turning in horses, horned cattle, &c. The injury this practice must do the young timber trees, is very great; nor can the advantage to those who claim the privilege, in any degree be thought to compensate it.

PRICE OF PROVISIONS.

Provisions of all kinds are more than doubled in price within the last forty years; and the same causes which have produced this rise, still continuing, there is little prospect of their becoming cheaper. A very principal one, is the great increase of manufactories in this, and the adjoining counties, more particularly those of Warwickshire and Staffordshire. A second, and perhaps of equal consequence, is the encroachment luxury has made on the mode of living of the inhabitants in general, from which even the farmer is not exempted. There are employed every week, on an average, from twenty to thirty horses, in conveying the productions of the butter

and poultry-market, from Worcester alone, for the consumption of Birmingham and its neighbourhood, besides what is procured from the markets of Droitwich and Bromsgrove. Those employed in carrying vegetables, and other produce, raised by the Evesham gardeners, are still more numerous. Provisions are not, however, on the whole, particularly dear, the certainty of a ready sale, being a sufficient inducement to most of the farmers on the confines of the counties of Gloucester and Hereford, to give a preference to this market; where the average price of butter in summer is nine-pence per pound, in winter, twelve-pence; good family cheese is seldom under five-pence; beef, those parts which are more particularly called for by the labouring part of the inhabitants, may in general be had in quantities, from three-pence half-penny to four-pence, and mutton four-pence half-penny; veal, for a considerable part of the season, four-pence, and sometimes under. The price of wheat (at Worcester, where the measure is eight gallons and an half), with all the other productions of the corn-market, have varied very considerably within the last seven years; at present, many of the articles run remarkably high: the price of wheat 7 s. 6 d. to 8 s. 2 d.; barley 4 s. 6 d. to 5 s.; oats 3 s. 6 d. to 4 s. 6 d.; horse-beans 6 s. 2 d. to 7 s. 2 d.; pease 6 s. 10 d. to 7 s. 4 d.; malt 7 s. 6 d.; hops of the best gathering 3 l. 10 s. to 5 l. The price of cyder and perry is extremely fluctuating. It is necessary to remark, that each town has its peculiar corn measure, and the price varies accordingly; the Worcester bushel is said to be the least.

ROADS.

The public roads are, in the greatest part of the county, good; in most, tolerable, and every where improving. As much cannot be said altogether of the parochial roads; these, however,

however, are also improving daily. Where new ones are made, the much approved method of rounding them, is generally adopted; in some parts, from the badness of the materials (a soft stone), and in others, from the heavy debts already contracted, the progress cannot be every where equally rapid; but these, and every other obstacle, will probably give way to the general spirit of exertion that is gone forth. The county, in this particular, is much indebted to some of its leading characters; and, it is presumed, their example in this, as in several other instances, will in time have its full effect.

Road Club.—The laudable exertions of the society of the Vale of Evesham, for the improvement of the road in their neighbourhood, must be noticed.—They have the pleasure of seeing their district assume a new face under their auspices; and instead of its being studiously avoided, as formerly, from the inconvenience, and even danger of travelling, they have now to congratulate themselves and the public, on a very safe and pleasant communication. An agreeable embellishment, if it may not be called improvement, and not very expensive, is the practice they have adopted, of affixing the name, on some conspicuous place, at the entrance of every village. The regulations of this very laudable institution, will be found in the Appendix, No. 4. Similar establishments, followed up by the same perseverance, would undoubtedly be attended with similar success. One circumstance does not appear to be in general sufficiently attended to, viz. that ditches on the side of roads, unless they are kept clean, and the water has proper vent, do considerable injury, if the water is suffered to stagnate in them. Where possible, it is advisable to keep them quite dry.

FARM HOUSES.

It appears to have been formerly a very general custom, to build farm-houses in low situations; undoubtedly for the convenience of water. Most of the old buildings continue in such places; and as it is but seldom that the whole require to be rebuilt at once, it will probably be some time before they are in general extricated. The inconveniences, and even losses, are however so great, that no small saving can counterbalance them. It cannot be necessary to point out to those who are interested in this subject, what they are, nor the advantages of removing their buildings to more elevated spots, and where the land will of course be sounder. One circumstance, however, as not being so immediately connected with the general system of this district, it may be right to mention, and that is, the opportunity obtained, of conveying by rain, melted snow, or streams, naturally descending from the still higher grounds, in winter, the most valuable parts of the manure produced in the farm-yard, over the adjoining lands; an acquisition, the importance of which is not easily conceived by those who have not seen it practised. Some of the old farm houses are well built, and convenient; most of the newly erected ones have the same advantages, and are in general well situated; some of which may be said even to grace the county, and as such, may be classed with its greatest modern improvements.

A great deficiency in the offices of the middling and lower sized farms, is the want of sheds for cattle in winter: besides the quantity of fodder they destroy, and the mischief they receive, from being exposed to the inclemency of the weather, it is not unusual to observe many acres round the yard, very materially injured by their constant treading. This grievance, particularly in the low situations so frequent in this, and many other counties, is certainly of such consequence, as to deserve

serve the most serious attention. The water with which the farm-yards are almost universally supplied, is a stagnant pool in the lower part of them, depending mostly on rain for its supply; by its situation, it receives also the greatest part of the filth, as it drains from the house and from the dung in the surrounding offices and yard; the water is of course always very foul, and often offensive—that its use is attended with any prejudice to cattle, has not been ascertained. A circumstance, however, so abhorrent to nature, would seem to admit of alteration for the better. It may be with truth asserted, that there are but few situations, which, under the present improved management of water, might not be amply supplied with a running stream, so as entirely to supersede the present mode of collecting large quantities of stagnant water in the yards, on different parts of the farms, and in the highways.

LEASES.

It has been observed, that there is an objection among the proprietors in general of this county, to the granting of leases. An ill-grounded jealousy on the part of the landlord, and the frequent disputes, and law-suits, occasioned by the present vague mode of drawing up these covenants, and the difficulty or trouble of drawing them up in such manner, as to adapt them properly to the peculiar circumstances of each farm, are the principal source of this opposition. Those granted, are generally for twenty-one years, determinable every seven, at the option of either party; some for shorter terms, and determinable at shorter periods. The land-tax and repairs are paid by the landlord. He reserves the timber trees. The restrictions by which the tenant is bound, are, not to break up the meadow or old pasture grounds; not to sow more than a certain quantity of the tillage, and that proportioned to what he

may be supposed to be able to manure properly with the produce of the estate; to spend all the hay, straw, green fodder, and dung, on the premises; or if hay or straw are sold, to procure a proportionate quantity in return, and to leave the farm in a proper course of husbandry. These are the general clauses by which the tenant is bound. Others, in some instances, are introduced, adapted to the peculiar circumstances of the estate, but they are not such as can convey general information.

That leases, and those for a long term, must tend to the improvement of agriculture, is the opinion of the occupiers in general, and of many proprietors: where any considerable improvements, such as draining, watering, marling, planting, &c. are to be made by the tenant, *they are absolutely necessary*; and it appears the objection on the part of the landlords might be remedied. That state of independence in which a long lease is supposed to place the tenant, is no longer a grievance, when he does his duty by the farm; it is from the negligent or dishonest occupier alone, that any thing is to be apprehended; and, *could the present tedious and expensive course necessary to eject the tenant, not complying with the conditions of this agreement, be altered, and the proceedings be conducted in a more summary way*—perhaps by a verdict of twelve neighbours, before an adjoining justice—this difficulty might be wholly removed. Those misunderstandings also, which arise where nothing dishonest is intended by either party, would be greatly diminished, were the simple language of common conversation introduced, instead of the present circuitous and intricate language of the law. The difficulty and trouble of framing leases adapted to the peculiar circumstances of each farm, would not, perhaps, be found so great, as at first sight they may appear to be: one form, drawn up by a person well acquainted with the business of a neighbourhood, might, with little variation, serve a considerable district. The principal source of this objection seems to be this, that

leases

leases are, in general, drawn up by professional gentlemen, who, having but few opportunities of more minute information, are under the necessity of copying from those who have gone before them.

As no sufficient evidence has been hitherto adduced, to establish the principle, that fallowing is not necessary to secure a continuation of full crops, the clause, obliging the tenant to fallow a due proportion of the tillage, is certainly a very necessary one, on the part of the proprietor, and will in time be found equally advantageous to the occupier. To fix an absolute rotation of crops, must subject the tenant to inconvenience, and occasionally, considerable loss. The number of years for which the convertible land shall be grazed, may be fixed with more precision; but even by this, from the uncertainty of the seasons, he may be liable to considerable injury.

MANUFACTURES.

THE principal manufacture of this county, is that of gloves; carried on chiefly at Worcester. It employs a considerable number of men, and a much larger proportion of the working women and girls of the city, and county round to the extent of seven or eight miles, from the age of eight or nine, and upwards. Any calculation of their number, must be extremely vague; it is, however, at a certainty so great, as to be severely felt through the neighbourhood.

The hands employed at Worcester, in the china, and carpet manufactories, are not very numerous; those employed at Kidderminster, in the latter business, are considerably more so. The carpet manufactory may be properly considered as a part of the œconomy of that town and neighbourhood. On the confines of Warwickshire and Staffordshire,

many of the lower class are employed in the manufacture of nails; others, in that of needles and fish-hooks.

The manufacture of salt at Droitwich, is chiefly deserving notice, from the immense revenue, compared with the size of the place. It pays annually to government, the lowest average, about per ann. That of glass, at Stourbridge, is very considerable, and employs many hands. There are also some iron works and collieries. Upon the whole, though this county is far inferior in its manufactories, to some of the adjoining ones, the numbers engaged in this line, bears no small proportion in that of its inhabitants; and their effect on its markets, and the value of the landed property, must be very great; nor does there appear to be room to doubt, but that they have uniformly operated to the advantage of agriculture*. They are often said to have increased the poor-rates; perhaps they may, in particular instances, but when considered on a larger scale, that will not, probably, be found to be the case. Had the present custom of abolishing cottages and small farms, prevailed to the same degree it does now, what would have become of one half of the former inhabitants of the country, if our growing manufactories had not received, and supported them? Either the population of the country must have sunk, an evil which God avert! or the price of labour must have been reduced so low, as to have been scarcely adequate to the support of the labourer.

COMMERCE.

THE produce exported, is chiefly fruit, cyder, perry, and hops; a considerable number of fat cattle, sheep, and hogs,

* One great effect which manufactures have upon agriculture, is that of raising the price of meadow land; and hence much arable land is necessarily converted into pasture.

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are also sent to London, and the large manufacturing towns of the counties of Warwick and Stafford. The quantity of wool is estimated at two thousand packs, of 240lb. each, value from 10l. to 16l. per pack. But the principal source of wealth, in its commerce with the different parts of this, and other countries, arises from its fruit, perry, cyder, and hops. The former is now growing into an article of considerable consequence, and deserves particular attention, more especially as the demand for it in the large manufacturing towns of the north, and all the intermediate country, increasing yearly, promises a certain and ample recompense for the greatest exertions that can be made in this branch of its rural œconomy. Some idea may be formed, from the following circumstances, of the quantity exported, and the price it bears. The average tonnage of fruit sent by water into the north, for the last three years, amounts to fifteen hundred tons; (in the year 1791 it exceeded two thousand and ninety-four tons), each ton weighing equal to fifteen horse pots, the measure by which it is commonly sold, making twenty-two thousand five hundred pots. The pot holds about five pecks.

The fruit sold in Worcester market, is allowed to amount to (and the circumstance is fully confirmed, by the rent given for the toll paid on it) one thousand pots per week, on an average of the last five months of the year.

In ascertaining the value of the produce, as an article of commerce, the two preceding months may be safely included; for though the number in these certainly falls short of this estimate, the superior value of the early fruits will amply compensate for the deficiency. Seven months, or thirty weeks, at one thousand pots per week, give thirty thousand—supposing one half of this quantity to be sent by water, and making part of the home consumption, there will remain fifteen thousand pots not accounted for in the estimate of the water carriage. Under these two heads, some part,

the produce of Herefordshire, is included, perhaps an eighth of the whole; which, when deducted, leaves the number twenty-eight thousand one hundred and twenty-five pots. Not more than half the produce in this line exported, is supposed to pass through Worcester; allotting, therefore, to the markets of Bewdley, Kidderminster, Bromsgrove, &c. &c. and the rest of the county, north of this city, thirty thousand pots, the whole amount may be fairly estimated at fifty-eight thousand one hundred and twenty-five pots. The price varies considerably, from three shillings to six shillings the pot, and some of the inferior sorts, under. Four shillings is deemed a low average.

The quantity of cyder exported, as far as can be collected from the opinions of several principal planters and merchants, may amount to about ten thousand hogsheads, of one hundred and ten gallons; the average price for about ten years past, 3l. per hogshead, as it is delivered from the planter to the merchant. The delivery is often a circumstance of considerable consequence, as they frequently live ten, twelve, or fifteen miles apart. That is the price of the greater part of the cyder sent out of the county; there are some few particular sorts, such as styre and golden pippin, which bring from 7l. to 10l. per hogshead; the quantity of these is not very considerable. The quantity of perry falls short of that of cyder, perhaps it does not reach one-tenth; but little is exported except the prime sorts, such as the real jaynton, squash, huffcap, &c. these bring from 4l. to 7l. per hogshead.

The number of acres in the county, planted with hops this year, is 5988. The lowest average, places the produce, at six cwt. per acre; the lowest average price above 3l. 3s. Calculating upon these low estimates, the whole may with much probability be stated with the exports.

BENE-

BENEFICIAL PRACTICES.

THERE are few peculiar practices in this county. The rolling pasture and seeded lands with large heavy cast iron rollers, is not observed in the adjoining counties, nor is it indeed very general in this. The advantages, however, where used, are very conspicuous, more especially on land that has been drained, that which is liable to be much trodden with heavy cattle, or is naturally disposed to be spungy. It has been also used on new seed land, with success. This practice cannot be applied in many situations: it is on the lighter dry soils where it is most useful, and even on these due attention must be paid to the seasons, and other circumstances. In several parts, the setting of beans by line, is practised, and found to succeed better than any other method yet attempted. The drill husbandry is well known, and is said to suit best the lighter soils. Dibbling wheat has been also tried on a small scale, and is said to answer; but at present, it does not appear likely to become general. The cyder mills of this county and Herefordshire, are infinitely superior to those of Devonshire, and if introduced there, would certainly be a valuable improvement. The advantages thence to be derived, will be more particularly pointed out, when that part of the business of the county comes to be considered *.

* The plough originally constructed in the Vale of Evesham, already mentioned, it is believed, might be adopted in other countries with advantage. It takes off the turf from any green land, about one inch and a half thick. The turf falls in the last furrow, so as to be totally buried by the mould, which is afterwards raised by another plough in the same beam; and by this mode of cultivation, the land can be harrowed almost immediately, which otherwise would not be well broken by two or three ploughings. There are certainly many parts of the kingdom, where this plough would be of use, when strong leys are ploughed up.

AGRICULTURAL SOCIETIES.

THE only society which has in view the promotion of agricultural improvements, is the Vale of Evesham Road Society. The narrow principle, which considers information in rural management no longer valuable, when generally known, though still to be met with in many above the lower class of occupiers, is gradually making way for more liberal sentiments. The nobility and gentry of the county, are uniformly communicative, and disposed to give every assistance in their power to diffuse knowledge, and to countenance and promote improvements; whatever alterations are proposed, are candidly attended to by all; and though the fear of disappointment in quitting old established customs, may long rivet some of the tenantry to their present errors, the success of those who dare judge and think for themselves, and who act in consequence, must in process of time remove them.

ON THE INCREASE OF POPULATION.

THE improvement, of all others, most likely to promote the welfare of this, and every other part of the kingdom, is that which shall tend to increase its population. Either the necessary labour on the land already in a state of cultivation, must be diminished by superior management, or the number of labourers increased, before the most important improvements in contemplation can be effected. It is sufficiently evident, that on this last point the principal dependence rests. How shall it be accomplished? Manufactures have a natural tendency to promote population, by enabling men early in life to support a family. Many circumstances, however, concur

to defeat it. The unwholsomeness of many of the employments in this line, and the general unhealthiness of the dwellings of the greater number of the labouring part of the community, engaged in manufactures, it is feared, more than counterbalance that advantage: it were well, did they support their numbers without any further demand upon the country. The same disadvantageous circumstances affect, the lower class of the inhabitants of large towns in general. These have been termed accordingly, and with too much truth, the grave of the human race. It is from the country alone, we can look, with well grounded hope, for this greatest of blessings; but here, from the disproportion labour bears to that of the necessaries of life, and the high rents required for the few remaining cottages; eight or ten years, the most valuable of a man's life, in this point of view, are lost to the community, before he can settle, with any prospect of supporting a family: it is even well, if, after so many years servitude, he has saved sufficient to provide the few necessaries of his cot, and has some little reserve left, for the first extraordinary emergencies that may occur. It is to those of large fortune, and great influence, we must look up for this essential service to their country; and great indeed, will be the merit of those who shall devote those advantages, with which providence has blessed them, to serve the common cause in that most essential point, the increasing its population. A civic crown was formerly decreed to him who saved the life of a citizen—what adequate recompense can be adjudged to him who shall be the means of adding many?

PRODUCE.

THE average produce of the tillage, bespeaks ample room for improvement, on land equal to any the kingdom can boast,

the highest seldom exceeding twenty bushels of wheat per acre, and falling frequently under fifteen: the average of the county at large, cannot be placed so high as fifteen—barley twenty five bushels on the poorer lands, up to forty five, as they improve;—oats and beans about the same;—pease very uncertain. The deficiency of the crops, considering the advantages of the county, is notorious; to account for it, would be rather an invidious task; something, however, may be suggested, and it is hoped, without offence.

In the hop districts, these most certainly engross too much time and attention; the plantations run away with the greatest part of the manure, whether home made or bought; and the hop planter, looks down on the other branches of husbandry, as a sort of secondary business, deserving but little notice, when put in competition with his darling hops; and what is rather extraordinary, though no one wishes for a general full crop, every one exerts himself, and strains every mean to procure one for himself. In the parts that are well fruited, too much dependence is also placed on this very precarious article: thus, advantages which, with an adequate spirit of exertion, would prove of the greatest benefit, are, in these instances, nearly lost.

FOUL SALT.

The brine pits of Droitwich afford a manure, and in such quantities, as would deserve attention, were it not for the tax laid some years back on foul salt. This now acts almost as a prohibition; its usefulness has been fully ascertained, when used judiciously. There are those in the neighbourhood, who, after considerable expence, prefer it to most others, and employ it, though subject to a tax of 4d. per pound on the spot. No argument against it can be drawn, from the effect which the constant draining from the banks of

the Droitwich canal (often very highly impregnated with it) has on the herbage immediately adjoining, no more than from any other injudicious excess, which must always be detrimental.

MARL.

RED and grey marl is found in most parts, and its use as a manure is now pretty well known, though it has not been so generally introduced into practice as it deserves. On the light sands on the north, mixed with dung, and on the stronger soils, with a due proportion of lime thoroughly incorporated, it will probably be found one of the most useful that can be obtained. A method of washing marl over watered lands, has been employed in one instance in Devonshire; and should the latter improvement be more generally adopted in this county, the former may in many instances be introduced, with but little additional labour and expence. The general principle of conveying the water over the land, is the same in both. Where marl is found between the source from whence the water is obtained, no large quantity is necessary; and the part to be watered, is broke up in summer with the plough; and when sufficiently slacked, by exposure to the sun, or if in winter, by frosts, the water is directed near it, whilst a man throws into the stream what quantities of pulverized marl is judged necessary; and is thus conveyed over the whole surface of the land, with an accuracy scarcely to be conceived by those who have not witnessed it. The only precautions necessary, are the employing it on land for which the marl will be a proper manure, and not conveying so much at once as may endanger the herbage.

TILLAGE AND FALLOWING.

THE plough is generally observed on the fallows after rains, when the land is said to work well; the great error of dividing the roots of weeds, at the time the smallest parts are almost sure to vegetate, is overlooked, and heavy indeed must be the rain that drives them home, when the team has nothing else to do. What is here said, cannot be supposed to dissuade from going over the fallows frequently, but to inculcate one of the most certain truisms of good husbandry, that one ploughing in dry weather, is of more service than all that can be done in the wet.

FLAX HUSBANDRY.

IF the growth of flax was more generally introduced on the middle soils of this county, much advantage might be derived from it. The prejudice under which it labours, has been noticed, and may render the following instance of the benefit to be gained from it, not unworthy of attention. On part of an estate held by the life of a very infirm man, after it had been almost wholly exhausted by successive crops of corn, flax was sown, as a last resort—it thrived well, the invalid lived, wheat was tried again without manuring: the crop on it proved equal to any of those formerly gained after a moderate dressing, The unexpected success of this first attempt, induced the holder of the property to make farther trial of it; and such has been the uniform advantage arising from it, that in a very considerable district of the county of Devon, flax is now very frequently adopted as a very useful and lucrative shift crop; but before this can be generally practised here, the high ridges must come down; cross harrowing

rowing the land being absolutely necessary, to bring them into a fit state to receive the seed.

PONDS, AND DRINKING POOLS.

THE giving cattle clean and wholsome water to drink, is seldom so much attended to as it ought to be. More attention is beginning to be paid to this important article, at least in Worcestershire. A new pond has lately been invented, which is usually situated where the corner of four grounds meet. The pond should be made about twenty yards square, ten feet deep in the middle, and sloping on all sides. As a security for the water not running out, it is generally puddled, or secured with clay, over which must be thrown loose stones, or soil, and afterwards a pavement. The pond will fill by the rain in winter, and be replenished by the fogs during summer.

More attention also, ought to be paid to the water given to cattle in the fold-yard, which is in general impregnated with all the filth that issues from the surrounding dung-hills.

IMPROVEMENT OF STOCK.

THIS county is by no means deficient in emulation, with respect to stock; and though it is not pursued with all the enthusiasm observable in some others, it is perhaps conducted with more skill than in most; but this must be understood of the superior managers. One mistake, and that a very capital one, has been noticed more than once—the attempt to introduce a larger breed than the nature of the soil will admit. After all that has been done and said on this subject, the real principle of improvement consists in suiting the stock

to the soil. Sheep, of the best and most fashionable breeds, are in the hands of several gentlemen; and various crosses have been made, and some beautiful and fine stock has been produced. On the commons and open fields, there is the greatest room for improvement; this, however, under the present management, is impossible. The cattle of the country, are chiefly bought in from those of Hereford, Stafford, and Gloucester. Those that have been bred, in general, are a mixed breed, without any particular improvement in view. Some few have now turned their attention this way, and the experiments are in judicious hands, such as will spare neither expence nor care, in perfecting them. Were more oxen introduced into the working stock, it would undoubtedly, be a very advantageous improvement. One objection of some weight is this, that they cannot be worked in yokes, upon the declivities of the present high ridges; and the harness necessary for them, worked in length, is very expensive; but this will be done away when the ridges are lowered. Their advantage to the owner, in point of keep, expence, and other circumstances, is obvious; it may not, however, be superfluous to add, that in those parts where they are in general use, they are preferred by the graziers. They are worked till they are six years old; they usually begin at the age of two or three.

IMPROVEMENTS SUGGESTED.

In considering the more immediate improvements of which the present management of this county is capable, the first thing that strikes even the most superficial observer, is the value of its waste lands. The converting of these, whether into convertable tillage, plantations, or inclosed pasturage, must of course depend on their peculiar circumstances.

The great point to be enforced, has certainly been but little attended to, in those inclosures which have already taken place—it is, to consider, in portioning out the land, the conveniency of draining and watering; the trouble and expence of which will be much curtailed, if these most material objects are sufficiently considered in the first demarkations; but few instances can occur, where the ditches for the necessary fences, may not be made useful drains, and in many, the only ones needful to carry off superfluous water. And there can be but few large tracts, a considerable part of which may not be allotted to pasturage, capable of receiving the benefit of watering. Should the meditated inclosure of Malvern Chase be carried into effect, the fairest opportunity offers itself, of procuring to the several allotments those inestimable advantages. It has been already hinted, how capable the greatest part of this county is of these improvements. A first step to this, however, must be, the clearing the natural primary drains, the water courses, the small brooks and rivulets; these are in general much neglected, and from their foulness, the water becomes in some measure stanked up, and continues at such a level, as prevents many of the smaller natural drains from emptying themselves. The custom also, of planting on the sides of the brook, and continuing the accidental growth on their banks, contributes much to this injury. The natural meadows, which are here of very considerable extent on the course of the large rivers, suffer much from this neglect; subject to be frequently overflowed, they are also drenched in heavy rains, with the water from the distant high grounds; and as the immediate banks of rivers are always above the level of the lands adjoining, the water, on both occasions, is continued on them so long as to injure them considerably. Open drains, to carry off the flood, and a sufficient water course, to receive and convey the torrents from above, to their natural destination, would prove a certain remedy to this evil.

The planting of timber, is another principal improvement this county is capable of; and as it is but just emerging from that neglect in which it has lain for a long time, the examining any of the prejudices that have contributed to it, may still be useful. The charge of want of exertion, which in most instances of neglect in rural business, attaches to the tenant, in this, lies wholly at the door of the landlord. The very distant prospect of a return, has undoubtedly great weight, but this, with proper management, will be done away, as a return of 20l. per acre may be reasonably expected from the underwood, &c. in twenty years, equal to an annual rent of 15s. per acre; and this frequently, on land which in its present state, or under any other management, would produce little or nothing. Along the banks of the Severn, more especially to the north of Worcester, many small, and not a few, pretty considerable tracts of waste land, are met with, which seem, by every advantage that can occur to encourage plantations, to invite the industrious hand of the planter. On those few spots where accident or industry has raised timber, it is of the finest growth, and first quality. On the banks of the Avon, or at no great distance, similar situations are to be found. They are more frequent on those of the Teame; and though this river, not being navigable, does not offer all the advantages of the others, it is highly probable that floats of timber might be safely conducted, from any parts adjoining, in the high floods to which it is subject. The neighbourhood of the present canals ought also to be carefully explored, for situations of this description. There can be no doubt, but in process of time, upon this plan, the former abundance of timber might be restored. Were the same idea extended also to the farms, a great inconvenience, now much complained of, would be obviated, the mutilating of hedge-row timber. On most estates, some spots are to be met with, which cannot be so well employed in any other way, as in raising timber and underwood for the

use of the farm. Hedges might then be thinned, without prejudice to the landlord; and the occupier, more particularly those of the old small inclosures, would get rid of a very great nuisance; for such the timber, in its present crowded state, must be to the crops. Where fuel is plenty, as it may be said to be through the greater part of this county, the white-thorn hedge should be more generally introduced, being the cheapest in the long run, and incumbering the ground less than any other. It would certainly be an object well worth the attention of proprietors of estates, more particularly those residing in their neighbourhood, to raise large quantities of these plants, for the use of their farms.

The extreme height of the ridges, is an error that calls loudly for redress; it is wonderful to what a pitch this practice is carried, in all the strong soils of this district, even in the inclosures of modern date; in the old ones, their effects may be traced in the very meadows adjoining the principal rivers. Their inconveniences are sufficiently known; but no where can they be more conspicuous than in the vales of this neighbourhood: after a considerable fall of rain, the Vale of Evesham has in many parts the appearance of a country intersected in all directions by navigable canals; and this on a soil the most retentive of water. There are many parts of the county, in which an alteration in this might be immediately adopted; in all, as soon as the necessary drains can be completed. Other improvements that will follow, are these—lighter, and more active horses, and much fewer in number, will be equal to the business of the district, and the implements will soon shake off their cumbersome make: something considerable has been already done in this way, and more is in contemplation. The methods employed are chiefly these—on pasture grounds the turf is removed, and the centre of the ridge being broken up by the plough, is thrown down into the furrow, and the turf replaced. Perhaps a considerable saving of labour in this method may be

 made,

made, by laying aside the turf of the first ridge, and when this is lowered, covering it with that from the second, and so on till the last, which will receive that laid aside from the first. The turf will then be removed but once instead of twice, which is the case when it is taken off and replaced on the same ground. In other instances, where the land, from a state of tillage, is to be laid down for pasture, the ridge is simply levelled, by removing the soil into the furrows. The success of this method does not appear to recommend it, as it wholly robs the centre of its best soil, and a less fruitful tract points out for years after, the loss it has sustained. In a third, the spade alone is used; and in this manner a trench, some four or six spades wide, is first dug out, to procure room. The digging is then continued throughout two spades deep. The first is thrown into the bottom of the trench, to form the future surface—the second from the bottom is thrown into the furrow, by which means the centre of the former ridge still retains its meliorated soil. The detriment the ridge suffers, from being robbed, in the one instance, and the expence attending the more improved method, being inconvenient to the farmers of confined capital, has induced many, in the inclosures of the Vale of Evesham, to adopt a sort of middle method—a small ridge is thrown up in the former furrow, which accumulating gradually, will, in course of time, bring the general furface something nearer a level. As slovenly neglect is usual in most of the tillage, it is no uncommon thing to observe, in a piece of eight or ten acres, perhaps a sixth part round the boundaries, not only uncultivated, but left a nursery for weeds. Nor is this the only mischief—there is on these parts a constant accumulation of soil, brought by the horses, and different implements employed, from the centre of the piece, and of course it has a tendency to give it a hollow form, of all others the most inconvenient. If, however, the great weight of the plough, or other implement, on their

present

present construction, and the resistance of a strong soil, requiring a greater number of horses to work them, is found to render so much room to turn, necessary, care should undoubtedly be taken to remove the accumulating earth, which, when done, and mixed with the other manure, will be found to have contributed the most valuable part of the dressing.

OBSTACLES TO IMPROVEMENT.

If the payment of tythes in kind, and mortmain tenures, are found obstacles to improvement, might not such obstacles be removed, by a law, enforcing a composition for tythes, to be assessed, not by the value of any particular estate, but by the average value of a considerable district, and re-assessed at different periods; confining the assessment to the value of the land in a common course of husbandry; that is, excluding all extraordinary improvements, such as buildings, plantations, &c. and by regulating renewals of the tenures under the church, in the same manner as the proportion of rent claimed as a fine, being ascertained by the value fixed for the tythes of the district.

The quantity of land still continuing in common fields and meadows, with the strange mixture of property in these, are also considerable obstacles. A general law, and that binding a small minority, by diminishing the present exorbitant expences that attend bills for inclosures, and the execution of them, would perhaps be the most direct means of removing them. The short time for which the tenants in general hold their farms, must also act as a considerable check on their exertions. Could any means be devised, of establishing that confidence between landlords and tenants, which ought to subsist among those whose interest must go hand in hand, a very considerable obstacle to improvement would be done away.

SPIRIT OF IMPROVEMENT.

THE lands in Worcestershire, have within the last twenty years been much improved in value, and the farmers in general have a turn for improvement. Even those who are not very earnest about it, *merely for the sake of improvement*, are ready enough to embrace a scheme, in which there is any prospect of advantage. Much, however, remains to be done; and the following queries, drawn up by an intelligent farmer, in Worcestershire, are well entitled to the attention of his countrymen.

QUERIES RESPECTING THE IMPROVEMENT OF WORCESTERSHIRE.

Whether turnips, and cultivated grasses, might not be more cultivated, and with great advantage?

Whether turnips ought not always to be hoed, and kept clean?

Whether marl might not be more advantageously managed, and more generally used?

As the hop-grounds are of great consequence to the farmer, whether more labourers ought not to be employed in cultivating the hops, as well as other parts of the farm; for, without a sufficiency of hands, either the one or the other must be neglected?

Whether the pasture grounds should not be cleared of the alders, and ash plantations made, and properly inclosed, on every farm, according to its size?

Whether the fallows do not follow each other too frequently?

Whether potatoes ought not to be more cultivated?

Whether beans ought not to be sown in drills, instead of broad-cast?

Whether improvements in stock, ought not to be more generally attempted?

Whether

Whether more cottages, for labourers, ought not to be built?

In regard to exciting a spirit of improvement, *premiums on produce*, although approved of by many, are not, perhaps, the best judged rewards. Land being of such different value, some worth ten shillings, and others worth thirty shillings, and even upwards, all hopes of a prize, would be given up by ninety-nine people out of an hundred, unless they were to rob one part of the farm to enrich a particular spot. The present high prices of grain, is undoubtedly a strong temptation to exertion; long leases would be another incitement, for few people will spend *much* on another person's land, unless from the hopes of being amply reimbursed, in consequence of their possessing an interest in the land for some years to come.

Having laid before the Board these general observations, on the agricultural state of Worcestershire, I shall now proceed, to treat more in detail of those two important productions, *hops* and *fruit*, the culture of which, is confined to this, and a few other districts in the kingdom, and consequently requires more particular attention; beginning with hops, for which this county is deservedly celebrated.

I. OF THE HOP PLANTATIONS.

THE hop plantations of this county are, in general, a pattern of neat and excellent husbandry. A very general and judicious experience, and the most persevering industry, have placed its management, in this particular, on the most respectable footing; and though something may be as yet reserved

reserved to engage and recompense the future exertions of the ingenious and industrious, it may be asserted with truth, that the peculiar, or more general produce, of no part in the kingdom, has been cultivated with a greater variety of experiment, and emulous exertion, than the hop plantations of this and the adjoining county. The different sorts of this valuable plant, cultivated here, are ranged under three general heads: the red, the green, and the white. A various cultivation, the real source probably of these first distinctions, has introduced a variety of different species, though differing little more than in name and degree, of the same colour, shape, and size. There are two, however, in more particular esteem, both with the planter and merchant; the Golding Vine, brought from the neighbourhood of Canterbury, and the Mathan White, the name of which denotes it to be a native of this plantation, and of the parish of that name. The most hardy, that which will flourish with the least attention, and is least liable to suffer from the seasons, is the red; perhaps the original stock. The next in this line, is the green; which is also the most productive. The tenderest, though at the same time the most valuable, is the white. The plantations of this county are principally to the west of the Severn, increasing as they approach the banks of the Teame, and the confines of Herefordshire. The situations preferred, are a gentle descent, with a south, south-west, or western exposure, screened at a distance to the north and east by high ground, or plantations of timber; but not so as to prevent a free ventilation: the soil, a deep loamy land, or strong clay, after it has been thoroughly limed and manured: but above all, a boggy soil, when completely drained, and duly meliorated, is said to produce the best hops.

When meadow or pasture ground is broke up for this purpose, it is either dug, or the sward, being first pared thinly off by the paring plough, it is buried by the furrow plough, working full ten inches deep. Old tillage, when converted

into hop-grounds, requires to be very completely cleared of woods; to be thoroughly manured, and to have the ridges, provincially lands, entirely levelled. The different manners in which they are worked, are, the tump, and the ploughed grounds; the former by hand, and the latter by the plough: those are laid out in the quincunx form, each tump being at the distance of from five to seven feet from the centre of each other. On these, the distance between the stocks, is from three to four feet; that between the rows, from seven to nine; the greater or less space being always allowed, as the land is either richer or poorer. In the ploughed, if the circumstances of the ground will admit of it, the rows run mostly north and south, with the view to admit the sun more generally when it has most force; but should it be long and narrow, its greatest length extending east and west, that direction is preferred: there are those who give it the preference when not influenced by any accidental circumstances, as receiving the morning sun, by which the chill of the night is soonest dissipated. The sets are procured from the shoots, or roots of the stocks, at the annual time of dressing, the latter end of March, or beginning of April. They must have two joints each, the roots striking from that in the ground, and the vine shooting from that above. Four are planted to a stock, at the distance of about four or six inches from each other, all inclining or pointing, so as to meet together in the centre.

There are two methods observed in planting young hop-grounds; the first and more general is, to plant the sets on the situation in which they are to remain, immediately after they are parted from the old stocks. In the other, the sets are planted in nurseries, in rows about three inches asunder, with about five or six inches between the rows; here they grow till the month of October, when they are transplanted into the hop-ground. Under this latter management, if the roots are good, one will be sufficient for a stock. In removing

moving them, great care must be taken to make the opening to receive them so large, as not to confine the roots; when planted from the stocks, a hole made with a peg, to place them in, is all that is required. The nursery has certainly great advantage; besides the saving of a considerable expence, where the sets are to be purchased, the land may be worked through the summer, to prepare it for the plantation. During the first year, the grounds are ploughed, or hoed, provincially kerfed, three times. They produce no hops; but a good crop of pease, beans, cabbage, or turnips, is obtained between the rows. The second year they are poled, and yield half a crop; the third year, they are in perfection. When they have reached this state, the management is uniformly as follows:—They are gone over, mostly four times, with the plough or kerf, beginning about March. The first business is to throw down the tumps, and rows of the former year, and to work in the manure, previously brought on in the winter. This consists of fresh earth, rotten dung, or a compost of dung, earth, and lime, judiciously proportioned, according to the nature of the soil; each acre receiving not less than sixty cart loads, for a good dressing—it is repeated, according as the nature of the land renders it necessary. The stocks are now pruned, the remains of the old vines, and superfluous shoots, are removed with the hop-knife. The second moulds up the tumps and rows; the succeeding ones complete the moulding up of the plants, and destroy the weeds. The tumps are formed round, flat at top, and about twenty inches diameter, and somewhat broader at their bottom. The ploughed lands are thrown up much in the same manner as for potatoes, or beans, only higher, and with more soil. The shoots begin to appear in April, and the poles are pitched the latter end of the same month, or beginning of May. These are set two or three to a stock, at a foot distance from each other, with great regularity and exactness, and inclining a little outwards, over the alleys. Some

attention is necessary, in this part of the business, not to over-pole the plants, either in number, or the length of the poles, as it weakens them; and by drawing the vine out to too great a length, renders them less productive. About the close of this month, and beginning of June, women are employed to direct the vine to the poles, and tie them with dried rushes. This is continued till they are out of reach. The only care now remaining is, to keep under the weeds, and to go over the plantations occasionally, to replace any vines that may stray, and repair any damage the plants or poles may have received from the weather. When they have reached their full growth, which is, in some measure, regulated by the number and length of the poles, the side shoots put out. The method of topping the vines, to promote the lateral shoots, said to be practised in other plantations, is never used in this.

About the second week in September they ripen, when the hop-pulling begins. In a plentiful year, it continues six weeks, more or less, according to the crop. The cribs are now placed, beginning on that part which lies most exposed to the sun, as being soonest ripe; one, two, or more, as the proprietor's plantation is large or small, and he has the convenience of kilns to dry them. Each crib has eight or ten pickers, women and children; they pick, if there is a tolerable crop, and they are any ways industrious, from six to eight bushels each per diem, which is about a sackful (the sack in which they are carried green to the kiln); eight of these sacks, when dried, make about one hundred weight; but in some seasons, though no ways negligent, they will fall short of one half of this quantity. The pickers come from the neighbouring counties; but the far greatest number out of Wales; some from thirty and forty miles distant. From the cribs, the hops are conveyed to the kilns, four or five of the sacks alluded to before, at a time, on a horse, and are dried as soon as possible; they damage considerably, if suffered to lie long together before

they are put on the kilns. They will heat in six or eight hours, and lose colour; to avoid which, the kilns are kept constantly employed day and night. The time the hops take in drying, is from eight to twelve hours, according as they are ripe and dry. Great attention, and considerable judgment, are necessary in this part of the business, the whole of the year's expences and labour, and at times property to some amount, being at stake on a single kiln—it is usually entrusted to those who have been long used to the practice. The general principle on which they proceed, is to begin with a very gentle fire, till warmed through; the heat is then gradually increased, and continued till the core (fruit stalk) is quite sunk and dry. They are then removed, and thrown together in a heap, in a corner of a large room appropriated to this purpose, and frequently turned from one side to the other, in order to cool them completely before they are bagged.

The method of bagging is as follows:—A strong hoop is made fast round the mouth of the sack, which is then let down through a circular opening in the floor, made for this purpose; a few are first put in, when the man who is principal in this part of the business, gets in, and by constant treading, presses them down as close as he can. A second person is employed in breaking them (that is, tearing the flowers, &c. from the fruit stalk) and throwing them into the bag as they are wanted: thus they proceed till it is full, when the mouth is loosened from the hoop, and closed, leaving at each corner of the sack a space for the hand, for the better convenience of those who are employed in carrying them.

In the ground, nothing more is done, but stripping and piling the poles; these are always set up in them, about three hundred in a pile, sloping and propping each other, the better to withstand the wind. Different opinions are entertained respecting the superiority of the tump and plough manage-

management; the former has certainly the advantage in many particulars, and is said to be cheaper and more productive: but as it is impossible, from the present extent of the plantation, that any considerable proportion can be worked in this manner, from want of hands, the enquiry cannot be of much consequence. The expences of these plantations may be calculated from the following statement:—As they always occupy the most valuable tract on the farm, the rent cannot be set down lower than thirty-one shillings per acre, in some instances it is much higher. The acre is not to be estimated as statute measure, but after the rate of one thousand stocks to the acre, which is in general one-fifth less.* The expence of manure is very heavy, as they produce none, except the ashes from the burning of the vines and leaves; so that were justice done to the rest of the land, the greater part ought to be procured from home. The price of dung (provincially muck) in general, is about six shillings per waggon-load, or three shillings per ton; (if from stables, in which horses are fed plentifully with corn, the price runs higher in proportion) and is frequently to be fetched eight or ten miles.

The hop-grounds are worked sometimes through the several seasons, as they are termed, at a fixed price, which is, from fifteen shillings to twenty shillings per acre, according to the different quality of the soil. The seasons are four, and thus divided:—throwing down and cutting, spreading and pitching poles, kerfing and tumping, stripping and piling poles: otherwise the workman receives his usual pay of one shilling per day, with drink; or some parts are taken by the acre, as pitching poles three shillings, stripping and piling two shillings and six-pence to three shillings and six-pence. The women employed to tie the vine receive six-pence per day, with two quarts of drink; or they take them by the year, at three shillings or three shillings and six-pence per acre. The hop pullers receive from six-pence to eight-

pence per day, with a pint of thickened milk, or something similar, for breakfast every morning; two quarts of drink per day, and two dinners every week. The pole-man, he who brings and removes the poles, has all his meals, drink, and from four shillings to six shillings per week. The coal (pit-coal charked) with which they are dried, is also an expence of considerable consequence; it is chiefly procured at Pinsax, in this county, at a distance of several miles from some of the plantations, where it costs two-pence half-penny or three-pence per bushel; twenty-eight bushels are a ton, and it takes two tons of coal to dry one of hops. The drier is paid from twelve shillings to twenty-one shillings per week, varying according to the number of kilns he has to attend: he has also his meals and drink. He who has the management of the bagging, is paid four-pence per hundred weight, exclusive of his assistant. There are different articles used for bagging: the Lubecks, and a sort of cloth manufactured at Dudley, in this county, are the most in use, and chiefly the latter. The price varies according to the demand. The Lubecks are dearest; they cost, in general, from twenty-eight shillings to thirty-four shillings per piece, and are thirty-six yards long, and about thirty-one inches wide. The Dudleys cost from twenty-two shillings to thirty-two shillings, and are of the same dimensions, each piece making eight sacks, four yards and three-quarters long.

Most of the estates which grow many hops, have plantations in which the poles are raised. Ash and barked oak are preferred; but willow, poplar, and alder, are also used. Where the estate does not produce a sufficiency, they are bought at the woods and coppices in the neighbourhood, at from five shillings to fifteen shillings per hundred: their length is from eight to eighteen, or twenty feet, proportioned to the goodness of the lands; they last, with care, seven or eight years. The sets, when bought, cost from six-pence to two shillings and six-pence per hundred. The last ex-

pence is the duty, which is one-penny per pound, and fifteen shillings per cwt. on the produce. The average of the expences in general, is thus estimated: that of workmanship, from twenty-five shillings to thirty shillings per acre; those of picking, drying, charcoal, sack, and duty, thirty shillings per hundred weight. The implements used throughout this plantation are, the plough, the kerf, the spade, iron-crow, and the hop-knife. The plough is the common one of the district; the kerf is a large hoe, with a plate about nine inches broad, and thirteen deep; the spade needs no particular description; the crow is an iron bar, about four feet and a half long, generally square at top, with a large point, in the octagon form, used to make the hole in the ground in pitching the poles: the hop-knife resembles in make the sickle, an old one being often converted to this purpose, by grinding off its saw-edge, and giving it a sharp one in its stead; when made with new mettle, it is something smaller. The crib into which the hops are picked, is an open frame made of wood, standing about four feet high, four feet broad, and nine long. To the upper edge of this, is fastened the crib-cloth, which is nine yards double, made with the same stuff with the bags, but coarser and cheaper. The sacks in which they are conveyed to the kiln, are the same. The kiln will be afterwards described.

When the hop-grounds are come to perfection, it is the general practice to exclude every other growth, and trust to them alone, for a return of the great expence at which they are cultivated. Under this management, those which have been uniformly attended to in their prime, and not weakened by over poling, will continue to produce plentifully from twenty to thirty years; and in some instances, much longer, care being taken to replace the stocks that accidentally decay. On the other hand, fresh grounds are generally allowed to produce the finest hops, and in greatest abundance. A question of some difficulty arises, at what time it will answer

best to give up the old, and plant new grounds, and must at last be determined by the peculiar circumstances of each plantation. But the error of continuing the old, as they often are, years after they have passed their prime, is self-evident. The first expence of the new, may weigh with the occupier who holds his farm by the year, or for a short term; but this is not the case with many of the principal planters. The same observation holds good with respect to the fruit plantations: these are often suffered to encumber the grounds, when there is scarce a hope left, that they may produce a crop anywise adequate to the expence of continuing them. This has given rise to the following practice, and were it universally adopted, it would probably prove advantageous to the planters in general:—The young hop-grounds are planted at proper distances with fruit-trees; these, from the frequent turning the soil and manure, are found to thrive better, and of course come to perfection sooner, by this than any other management followed in this county. The constant attention to the fences necessary for the hops, is of the greatest service to the trees, by protecting them from their greatest bane, the teeth and rubbing of cattle of every description. For years, there can be no doubt but the advantage to the trees, more than compensates any loss the hops sustain, considerably. Later, it is true, the trees prove prejudicial, by the spreading of their roots, and by their branches intercepting the light and heat of the sun; preventing also a free circulation of air. This, however, will not happen in any considerable degree, till they are fifteen or twenty years growth, the time when the hops, under this management, may be expected to decline, and it will be necessary to apply the land to the purposes of which it is most capable as an orchard. In this method, there would always be a constant succession of young vigorous plantations of both produce. Those years in which the hops fail, some return for the great labour and expence they are at-

tended with, might be looked for from the fruit; a larger proportion of the land would share in turn, that extraordinary attention which is now confined to those parts on which the hops are grown. The crops of these would probably never rise so high as they occasionally do now; but it must be remembered, these are not those which pay the planter best, as all the expences on the produce are the same, on a given weight, whatever price it bears. Moreover, the average produce of the plantations is now said to exceed the consumption: in the great years, such as the present, so much so, as to reduce the price so low as scarcely to repay the planter; they are, nevertheless, increasing: those of this county, within the last three years, have added one hundred and fifty acres to their former growth, and this, notwithstanding there appears but little prospect of any new markets for them being found: a very serious consideration, and highly deserving the utmost attention of the planters. If this statement proves true, the following practical inference may be with certainty drawn from it—that it will be adviseable to forego some of those points which are particularly calculated to assist the crops of hops alone, in favour of a produce, the value and consumption of which are constantly increasing.

The circumstance of those hops which are most in request, ripening all at nearly one time, is a considerable inconvenience both to the owner, and holder of the estate: as they damage so soon, whether left on the wires when ripe, or gathered, if not dried immediately, it is necessary to have buildings, and a number of kilns in proportion to the size of the plantations, and more hands during the season, than would be otherwise wanting. Could those sorts which ripen earlier or later, be improved, or any others introduced, that do so, it would be a considerable acquisition. The parts necessary to perfect the seeds, are found on different plants, and as the greatest stress is laid on these, it may be proper to notice, that the practice of removing the barren stocks, may be car-

ried too far: it is an enquiry well worth attending to, whether this may not be the cause, in some instances, of the early decay on some grounds.

The following observations of Dr. WITHERING (Bot. Arang.) on the honey-dew, deserve to be introduced to the notice of the planters.—" If the hop-yards were covered with " stones, the plants would be less liable to suffer from the " honey-dew, or from the otter moth; for the honey-dew is " the excrement of a species of louse (aphis); but these in- " sects seldom increase so as to endanger the plant, unless it " is in a weak condition; and the larva of the otter moth at " the roots, first occasion the plant to be sickly. Now, " when the hop grows wild in stony places, and fissures of " rocks, where the moth cannot penetrate to deposit its eggs, " the hop is never known to suffer from the honey-dew."

Under this view of the disease, might not the practice of smoaking the fruit plantations, on the first alarm of a blight used in some fruit countries, be applied here to those of hops? The other injuries to which they are liable, still remain without a remedy. A free circulation of the air through them, and complete draining of the land, are the only dependence. The use of the kerf is attended with one disadvantage, and which, when employed, almost solely, to destroy weeds, is of consequence: the person working with it, in some measure, defeats the intention of his labour, as he is continually treading down the soil again, he has just loosened; and thus, in some degree, resets the weed he had but a little before turned up; but the greater dispatch made with it, more than can be done with the spade, will probably continue it that preference in which it is held.

The tythe of hops is more particularly complained of than that of any other article, and considering the very great expence at which they are cultivated, it appears to be with reason. The present regulations respecting the hop-duty, are not complained of, and if the tax must be continued (to

use the language of the planter), it cannot, probably, be altered for the better. The only use of consequence, to which the hops are applied, is the preserving malt liquors. The shoots, called hop-tops, are introduced in spring, as an elegant vegetable, and somewhat resemble asparagus. Strong cloth is made in Sweden, of the stalks; for this purpose they must be gathered in autumn, soaked in water all winter, and in March, after being dried in a stove, they are dressed like flax.

The construction of the kiln is as follows—The brick-work rises perpendicular from the ground, to a height sufficient to admit of about two or three feet below the bars, or grate, on which the fire is made, and about six or seven above it. The dimensions at the base vary, according to the size required for the grate, and to give the brick-work sufficient strength to support the superstructure. The height of this is determined by that of the building, when it is not erected new for the purpose. At the top of the perpendicular brick-work, iron bars are fixed at right angles; on them are laid tiles, or large flat stones, where they can be procured; these are covered on the upper side with a coat of mortar. The name given to this part of the kiln, the spark stone, sufficiently denotes its use; it is placed in the centre, and of such size, as leaves room around it to admit the heat above, at the same time that it prevents the sparks from the fire being carried there. From this part, the brick-work becomes wider, overhanging gradually for about four feet, in a funnel shape, when it again rises perpendicular about two feet: here joists are worked in, at small distances from each other, and on these, laths are nailed, forming the floor. The brick-work is continued a foot higher, forming a breast-work round the top; on the floor, and round this breast-work, the hair-cloth is spread, in which the hops are contained.

II. OF THE FRUIT PLANTATIONS.

THE fruit plantations do not share, in any proportion, the attention paid to the hops; such, indeed, is the natural fruitfulness of the soil, and so congenial to the growth of fruit of every kind, that it flourishes, even where most neglected, in a manner unknown to most other districts; of course, necessity, the first spur to exertion, is wanting. Many circumstances, however, unite now, to fix the attention of the county on this article of its produce.

The plantations may be considered as consisting of those in the old orchards, and those of later date; of those under the present improved management in the hop-grounds, and the single trees, either in hedge-rows or elsewhere. The old orchards are by no means deserving of particular notice, except for the strongly contrasted light in which they place the improvements already adopted, and to point out those which may be more abundantly introduced. There is no variety of soil or situation, surface or aspect, through the county, that has not its plantations under the old system. These leading circumstances of the present management, to judge from them, were much undervalued by our ancestors. They severally abound with a variety of the different kinds of apples or pears, and sometimes of both; and are much crowded, their greatest distance being, whether in pasture or tillage, twenty feet between the rows; and on an average, much less betwixt the trees (frequently, no order in the planting is discoverable); the heads, of course, have not sufficient room to spread, but are much entangled with each other, and form a shade so thick, as to injure materially, not only the fruit, but the crops also that grow beneath. In many instances, there is scarce an evil to which they are liable, though easily remedied with moderate attention, by which they have not suffered in a great degree. If the bark has escaped the teeth,

not a solitary instance occurs, where they have been preserved from the rubbing of the different cattle with which they are stocked. They are universally over-run with moss, and often encumbered with a considerable weight of mistletoe, and decayed wood: such is the condition of many, from age and neglect, that they ought to have been replaced by young plantations long ago.

There is but little can be added, respecting the trees growing in hedge-rows: the practice is now generally condemned, and given up, for reasons too obvious to be mentioned. Those of long standing, partake of all the defects of the old orchards, as far as their situation will admit; the same may be said of those scattered up and down the farms, or found in small clusters, the remains of former small inclosures.

It is from the plantations of later date, more particularly, that the following observations are drawn.—Different soils are well known to influence both the quality and flavour of the produce; some attention has been paid, in this particular, but by no means all that it is capable of; the size to which the several trees naturally grow, and the predominant characters of the fruit, being but little attended to, in fixing on them for the culture of the different sorts. Those preferred are, the deep loamy lands, and strong clays, when perfectly dry. The former, on the soft sandy stone, which prevails in some of the western parts of the county, though without any considerable depth, is esteemed particularly well adapted for cyder plantations. The gravelly clays, frequent in many parts, are also deemed favourable. Marl, when duly meliorated, is in much esteem; perhaps, strictly speaking, many of the plantations, said to be on a clay soil, are growing on a meliorated marl. These are what are prefered, and are even necessary for apples. The pear will also do well on most other soils.

The situations are generally chosen, so as to avoid the extremes, which either expose too much, from their elevation,

or are liable to suffer from moisture, by being low. A gentle declivity, and south or south-west aspect, with a view to secure them from the chills of the north and east, is sought for: some distant screen also to the west, to protect them from the violence of the winds proceeding from that quarter, is required. No preparation of the ground, for planting, is made, beyond that which occurs in the common course of husbandry.

The stocks are generally raised from seed obtained from the crab, or kernel fruits, and mostly bought at nurseries. The price is from eight-pence to eighteen-pence: the management of them must of course be uniform; the only object with the nursery-men being to procure strong, upright, handsome plants, without any view to their future application, as to the different kinds of fruit which they are to bear; some are also procured wild from the woods. They are planted at about eight or ten years growth, seven or eight feet high, and about four inches girth; in this situation, they remain in general three years before grafting, as it is esteemed the best practice, to graft after they are transplanted to the spot on which they are to continue. The time of performing this, is in the months of March and April. The methods chiefly used are, the stock and saddle grafting. In the former, the head of the stock being sawed off, and two or more openings made with the saw, and afterwards smoothed with a knife, an equal number of grafts are secured in them with clay, or the common soil of the ground, tempered into a paste with water. In the latter, the head is also taken off, and the graft bestrides its top, which is shaped up into a sharp edge to enter it, and is secured as above. When this method is adopted, it is always done at a much earlier period, and generally in the nursery. The grafts are mostly procured from the same, or some neighbouring plantation. In taking up and replanting, the setting of the tree upright is all that is attended to—but little method is observed in either

cutting,

cutting, or placing the roots; the soil is returned as it came out, and if the ground is pasture, the turf is carefully replaced: they are then supported by one or two stakes drove into the ground, reclining towards them; to which they are tied with a band of hay or straw. In the hop-grounds, no further security is required, but in those that are liable to be stocked; they have either thorns fastened round them, or a frame to protect them: these frames consist sometimes of three stakes, standing triangular with cross-pieces; at other, of only two, but considerably broader than the former, and furnished in the same manner with cross-pieces. This, however, must be understood of the superior management; it is too often wholly omitted; or, having been provided at first, is afterwards neglected. In the hop-grounds, and more modern plantations, the distance usually observed between the rows, and betwixt the trees, is from thirty to forty feet. From this time till they reach their full growth, the only attention they receive is, to train the trunk upright, and to clear the head from the low hanging boughs, in order to place them as far as may be, out of the reach of cattle. Pruning the trees, and clearing them from decayed and useless wood, is, in some degree, continued afterwards. In about five years from grafting, they begin to bear; and in about thirty years, are supposed to reach their prime, and to continue in full vigour thirty years more. Pear-trees, for a still longer period; in many instances, they are known to have produced plentiful crops when a hundred years old. The produce of the different sorts of fruit, varies considerably—an apple-tree that yields a hogshead of liquor, is deemed a great bearer; whereas, instances have occurred, of a pear-tree affording three hogsheads, of a hundred and ten gallons each. Most plantations have their trees, that, in a tolerable year, give a hogshead each. The apples in most esteem are, the red and yellow stire, golden pippin, bland-rose, red streak, different sorts of quinnings, rennets, margils,

pear-mains, &c. &c. The pears are squash, huffcap, barland, linton, &c. As a general characteristic, apples of a yellow or red colour, both within and without, are preferred.

The management of the soil varies in nothing from that pursued on those parts not planted; the same succession of crops is observed on the arable, and the grass-grounds are either mowed or grazed as usual; nor is the choice of manure influenced, but by the circumstances of the soil. The different fruits, and their several kinds, ripen at different times, including the early sorts for the market. The season begins about June; but the fruit-harvest, more strictly speaking, for the general orchard fruits, not till the beginning of September for pears, and the close of the same month for apples. Their falling spontaneously from the tree, is the only criterion by which they judge of their ripeness. Two methods of gathering are observed—the one is, hand-picking, when they are taken from the tree singly by the hand, so as to avoid every risque of bruising them. In the other, and more general way, they are shook off with long poles having hooks, with which they lay hold of the boughs; or, when more force is necessary, they are beaten off with the poles. The first is usually followed with the fruits designed for the table, or the market; these are generally gathered before they are fully ripe. The latter is universally adopted in gathering those for the mill; in this also, the trees are always cleared of the whole of their produce at once. That which is designed for the table at home, or for the market at a later season, is laid up dry on the floors of large rooms, strewed with straw; in frost, they are covered with it, and are examined occasionally, to prevent, as much as possible, the accidental decay of any from injuring others. That designed for the mill, is collected together, even the choicer, in large heaps, near the mill, in the open air, and on the ground: the two last circumstances are particularly insisted on, to prevent too great fermentation before they are ground.

But little care is taken to keep the several sorts apart: a particular quarter of the general heap, is the chief distinction; a partition with a board is sometimes made, but this is only for the prime fruits. The size of the heap is very uncertain, as no means are employed to confine them; in the centre they usually rise to the height of three or four feet. In this state they remain exposed to the weather, till they are judged to be mellow ripe. Should not the whole be made into liquor before the frost sets in, as is often the case in great fruit years, the heaps are carefully covered with straw, to preserve them from it.

What follows, with respect to the making of cyder, must be understood as relating to the general practice of the county. When deemed in a proper state, the fruit is conveyed into the mill, and ground with great care, so as to reduce the whole pulp, rind and kernel, as much as may be, into an uniform pap. When removed from the mill, it is thrown into a vat, where it remains for a day or two, till some degree of fermentation is observable. It is then put into separate hair-cloths, each being, when the sides are raised over the contents, about six inches thick; and from six to ten of these are placed, one on the other, beneath the press, where they are continued, under a most powerful pressure, so long as any juice can be forced from them. The liquor is then put into other vats, and when the grosser fæces have separated, it is drawn off into casks of sixty-three gallons each, leaving both the scum that had risen to the top, and what had settled to the bottom, behind. This being strained through a three-corner bag of linen, or woollen cloth, is added to the other liquor, and is supposed to be the best of the whole. This last part of the process is omitted till after the principal part of the liquor has been racked once, or oftener, as it is found necessary to check the fermentation; and the fæces separated at each time, are collected, and the whole strained as above. The liquor thus gained by straining, is found to possess considerable power to

retard.

retard fermentation; it is accordingly added to each vessel, in proportion as it seems more or less disposed to ferment. The refuse from the press in plentiful years, is thrown away; but in those of scarcity, it is mostly ground a second time, with water; and the liquor procured, is used as an inferior family beverage, called, provincially, *washings*. In very scarce years, it is not to be supposed but the cyder-house has its obligations, in point of quantity, elsewhere, as well as to the trees. The management of the fermentation and fining, is an art so refined, so enveloped in mystery, that mortal language is not equal to the describing of it; though communicated some way or other to numberless votaries, they have all acquired it they know not how; of course they cannot, perhaps will not, give any information on the subject. This much is certain, no borrowed ferment is used, and the fining is variously conducted with white of egg, isinglass, ashes, sand, bullock's blood, or red earth, according to the suggestions of the several genii who may be supposed to preside over this part of the business.

The dimensions of the buildings vary according to that of the plantations. The construction of the mill is this:—A heavy round and flat stone, running round on its edge in a circular trench, sunk in several others closely joined together: the fruit is thrown into the trench, and ground by the weight of the circular stone rolling round, and drawn by a horse. The dimensions of the bed, or horizontal part of the mill, that in which the trench is made, in one of a middle size is about ten feet diameter, and stands about twenty inches from the ground. The depth of the trench, is from eight to twelve inches. On the inner side, it rises perpendicular, the outer sloping so as to give about four inches greater breadth at top than at bottom; by this means the fruit, when crushed from under the roller, rises chiefly on that side, and is more easily returned into the centre by the person who follows, generally a woman, or child, who also attends to the horse. The re-

turning

turning of the fruit into the middle of the trench, is sometimes effected by fastening a piece of wood, used for the purpose, to the mill work. The size of the circular stone, or roller (that which runs in the trench) in a mill of these dimensions, is about four or five feet diameter, and about fourteen inches thick; the weight varying according to the texture of it, from one ton to one ton and a half. An axle-tree passes through the centre of the roller, one end of which extends sufficiently over the bed of the mill to admit of a horse being fastened to it; the other enters an upright shaft, which has a circular motion by means of a pivot in some beam or bearing of the floor above; the bottom has a similar motion on the centre of the mill. The axle-tree has also a rotary motion in the shaft, and again in that part to which the horse is fastened. Thus a circular and rotary motion is obtained. In this state, however, which is by far the most general, the machine is incomplete, as the roller frequently slides along the trench, forcing the fruit before it. To obviate this defect, a cog wheel has been added, in several instances, to the inner arm of the axle-tree, which working in the teeth of a corresponding wheel fixed on the surface of the bed, this motion becomes equally certain with the other. Another improvement, lately adopted, is this—the inner edge of the roller is sloped off, so, that when standing in the trench, it forms with the bed of the mill a level, by which means the circular motion is much eased. The rotary motion is also much assisted. The press is constructed on the same principles of every other perpendicular press: short levers are used at first, afterwards longer; and at last, a long iron bar. To increase the purchase, a strong rope is ultimately fastened to the end of the bar, by means of an open noose, and secured from slipping off by a pin; this rope communicates with an upright post in a distant part of the building, moving on pivots at each end; the lower, in a hole of the floor, the upper, in some of the timbers above: this post has also openings about three or four feet from the ground,

to admit levers, by which it is worked, and the utmost force required is obtained. A cast iron screw has been lately introduced instead of the wooden one—no inconsiderable improvement.

The only defect complained of in the mills, is this—they do not always break the kernel sufficiently (it must certainly be very difficult to fix so small, hard, and slippery a part, when dispersed through large quantities of soft matter in machines of such dimensions), nor is it probable any improvement of the present simple, but excellent construction, can wholly obviate it. Nor do the different contrivances hitherto proposed, seem likely to be very generally adopted. Such, however, is the price the more perfect liquors bear, as to make any moderate additional expence not of material consequence. In preparing these, picking the fruit, so as to separate that which has been damaged, is particularly recommended by the first managers. When this is done, might not the person thus employed, with a circular scoop, take out the core of the apple with but little additional trouble? The form of the instrument conceived under this idea, is as follows: the cutting part of it cylindrical, open at both ends, half an inch, or rather, more in diameter, and about two inches long; from each side proceeds an upright piece, three inches, or something longer than the largest fruit, to give room for the core to fall out between the top of the cylindrical part and the handle: this is formed by these two pieces meeting in the middle, and entering a cross piece of wood. It is conceived, that with little practice, this might be used with considerable expedition by children, at very low wages: bone would be the most eligible material to make it of. Should metal be used, the inside of the cylinder might be armed with two or more cutting edges, crossing the diameter, or rising along the inside; these would serve to divide the core still more. The kernel, thus separated from almost the whole of the pulpy part of the fruit, would, if ground by itself, be with more

certainty

certainty brought under the action of the mill; or would be reduced with much less trouble, by any of the other machines that are used, or have been proposed, for grinding fruit. The method of using it would be this—a piece of deal, or any soft wood, must be fixed before the person employed, on which to rest the fruit, while the scoop is forced through it, and a pail, or bucket, underneath, to receive the core as it drops from the scoop, each forcing out that which preceded it. Should the idea, as thus stated, be approved, it may be carried still farther. The fluted iron rollers, used in some parts of Herefordshire for a cyder mill, might be adapted to this grinding of the kernel; and contrived, without much additional machinery, to work with the present mill, or the construction of the malt mill could be easily applied; the nut being fixed on the inner arm of the axle-tree, the box secured by a support, projecting above and below from the upright shaft. All this, however, is only conjecture, no attempts having been made as yet, to put it in practice. Should it be found to answer, or lead to any other improvement, by directing the attention of the ingenious to this defect of the present mill, every end proposed will be fully attained.

The stone of which the mills are made, is not met with in any part of this county; they are procured from several parts of Herefordshire; the nearest is Bromyard-down, a distance of about eleven miles from Worcester. Those most in esteem, are brought out of Wales. The price of the stone, worked at the quarries, is twenty shillings per foot; that is, a mill, the bed of which measures ten feet in diameter, costs ten pounds; the expence of setting up one of these dimensions, four or five pounds; the price of the hair-cloths for a press, to a mill of this size, is from five to six shillings each; they measure about three feet six inches square, and last, with care, twenty years or more—the mills, a hundred years and upwards.

The superiority of the mills of this district over those generally used in Devonshire, has been already noticed; and so very obvious are the advantages they possess, that it appears matter of much surprise, they should not have hitherto supplied the place of their very imperfect contrivance to break the fruit—this being the most the mills of that county can be said to do. The benefit derived to the liquor, from the rind and kernel, appears to have wholly escaped the observation of the cyderists of that district, and is certainly the reason of their sending the fruit to the press so very imperfectly reduced as it is in their present practice. The hair-cloths employed here in the press, should also supersede the reed and straw used there. They are not only more convenient, but, on the whole, considerably cheaper; the reed for a hogshead of sixty-three gallons, costing, on an average, sixpence, seldom less.

There are other circumstances in which the fruit management of the two counties varies considerably. The following instances may possibly be found deserving the attention of the planters of this.—The orchards of Devonshire are wholly appropriated to this produce; no other crop, except now and then a little garden stuff, is ever expected from them. It is, as before observed, a general clause in their leases, that they shall not be stocked; and though horses, and perhaps calves and pigs, are turned in, in the spring and beginning of summer, it is mostly a trespass upon the covenant. Sheep are universally excluded, and this, from a well-grounded apprehension, that the grease, or whatever it may be they leave on the trees after rubbing against them, is peculiarly prejudicial.

Upon the first surmise of a blight, they collect the coarse grass of the orchard, or any other material that in burning produces a considerable smoke, and with this they fumigate them. Myriads of insects have been known to be destroyed in this manner. The fruit is gathered as it falls from the

tree;

tree; no force is used till the leaves are mostly fallen, and all employed then, is shaking with the hand, or striking between the larger branches with a slight pole. It is, if possible, collected when dry, and housed in a loft over the mill, separated frequently with partitions, all opening by sliding boards into one part, in which there is a hole, through which it is let down into the mill; as that gathered first is placed nearest the opening, it of course is also ground first. No respect is had to quantity; whatever the loft will hold, is placed in it without scruple. The circumstance of much rain falling on the fruit when separated from the tree, though totally disregarded, or rather recommended here, is considered there as one of the most fatal accidents that can befall it. If the loft over the mill is not equal to the whole crop, what remains is laid up in other buildings.

As some liberty has been taken, in reprobating what appears to be the general management of the county, with respect to the fruit plantations, the following observations are offered, with great deference, to the consideration of the planter.

The advantage of situation is thoroughly understood, and though there is some difference of opinion as to aspect, the leading principles are well ascertained; and will no doubt, in due time, be universally carried into effect. The general outlines, with regard to soil, are known and observed, but there appears room for improvement in the filling of them up; that is, in the appropriating of the several soils which are fit for fruit; to secure and improve the discriminating qualities by which each of the superior sorts is distinguished. Trees which naturally grow to a large size, planted on a shallow soil; austere fruit on a strong clay; and that which is dry and spungy, on a crude marl, are errors often met with, very obvious, and easily avoided. The stock should be raised under the eye of the planter, or under his who has a still greater interest in the success of the plantation,

tion, the proprietor's of the estate. In the nursery, a proper distinction should be made, of those raised from the seed of the crab; those from an austere, and those from more mellow fruits; that they may be each applied to the growing of fruit of that character they suit best, or may be most likely to improve. There certainly is no sufficient reason why those from the crab should be uniformly preferred; the others may, without doubt, in many instances, have a preference: they decay sooner, but they also come to perfection sooner; and when the seed is selected with care, from young vigorous trees, as that of every kind ought to be, are found to possess every requisite to form handsome and lasting plants. Owing to inattention in adapting the stock to the size of the tree it is intended to support, it is very common to see the upper part of the trunk, that growing from the graft, several inches larger in girth than the lower; that which remains of the stock, forming a considerable projection where the graft was inserted. Great care should be taken in the choice of stocks, independent of that to ascertain the seed from which they are raised. At a very early date, a pretty accurate judgment may be formed of the future success of the plant; at two or three years growth, many will be found to put out thorns; others will be disposed to throw up shoots from their roots; both should be invariably removed immediately.

An improved practice in grafting, has been lately introduced, and deserves to be more generally adopted. Instead of taking off the entire head of the stock, it is left on till the the boughs are large enough to receive the grafts. An injury to which the trees in general are liable (splitting in the crown) is by this means in a great measure avoided. The common soil, or clay, used to defend the grafts, is apt to crack, and fall off in dry weather; and a compost of sand, and new cow, or horse dung, would be a useful improvement. The absorbent system of plants, being now generally admitted, it is an inquiry worth attention, how far the

practice of taking off the whole head of the tree, in grafting, may prove prejudicial to its growth. The spare trunks of the lopped elms of the district, stretching out their small heads to the length they do, in quest probably of nourishment they have been deprived of, certainly countenance the suspicion.

In preparing the ground, something more than the mere sinking of a hole capable of receiving the roots, ought to be done. The openings should be made at least two feet deep, and for some considerable time before hand (the longer in reason, the better); the earth, more particularly that from the bottom, should be repeatedly turned; if the soil be of a stiff marly nature, till it is completely reduced. They ought also to take in a circumference exceeding that of the roots, in order to give the young fibres sufficient room to extend themselves through the meliorated soil: six inches is the depth at which trees ought to be set. In planting, the hole should be nearly filled up with some of the inferior soil; on this the sod, which will probably be nearly rotten, be laid, and the roots spread with care immediately on it. A necessary precaution is this, that they do not cross each the other, and that they extend as much as may be, equally in every direction; the remaining mould should be then returned, throwing the best, that from the former surface, round the outer part of the hole, and working it carefully in among the extreme roots. To those who have been accustomed to plant in the usual manner, these directions will, perhaps, appear trifling and unnecessary; they are recommended, however, not as a plausible theory, but as the result of a very considerable experience. Watering the holes before planting, and the trees after, has been practised, and it is said with advantage; but the time and labour this requires, to do it properly, or rather so as not to prove injurious, must exclude it from the common practice; it will be, however, right to pay attention to the nature of the soil,

and if dry, or of a very loose nature, to plant rather in the months of October and November, than in the spring.

The following instance of successful management in this particular, deserves to be recorded, more especially, as there are many situations in this county that now lie neglected, on which it might be adopted with every prospect of success. The ground planted was in pasture, with a gentle declivity; the soil, a shallow strong clay, on a solid calcareous marl. About the middle of March, circular holes were opened, about four feet in diameter; the sod, with the surface soil, to the depth of about six inches, was thrown up on one side, on the other, that beneath, so as to leave an opening two feet deep: during the summer, the whole was repeatedly turned, and as winter came on, the earth being then dry, was thrown up separately into round tumps, by the sides of the opening; on the approach of the following spring, small gutters were made level with the bottom of the holes, opening on the surface below, so as to carry off all the water that could collect in these basons formed in the marl. In planting the trees, the method already recommended was observed, and in the following winter, a circular trench, two feet wide and two deep, was dug out round the outsides of the first openings; the soil left exposed, and turned as before; and the ensuing summer, it was nearly filled with furze, before the soil was returned into it, with the view to keep it loose, and by that means invite the shooting of the roots. The gutter was also extended, and carefully preserved. On the adjoining ground, the situation and soil exactly similar, a plantation was made in the usual manner, the trees being set when the openings in the first were made. The latter was repeatedly manured, and managed throughout with attention: on the former, no manure has been used. The trees of each plantation were young and thriving, about the same age when planted, and every other circumstance, exclusive of the method of planting, the same. The result

of the experiment, for such it may be called, though accidental, is this—the trees of the former plantation are at this time (about fourteen years from the first opening of the ground) full twice the size, some even three times, that of those in the latter, which are nevertheless allowed to be well grown. The difference of the produce is equally great. One circumstance, however, ought not to be omitted, and may probably be thought to have contributed in some measure to the superior growth of the former: they are trained so as to form low spreading heads, branching off at about two feet from the ground. The latter, on the contrary, to form what has been termed the upright besom-head, with a stem about five feet long, which is the usual height in the more western parts of the kingdom.

The only motive that induces to guard the trees, appears to be the apprehension of their being torn up by the wind, or barked whilst young, by the cattle. The mischief done to them in every stage of their growth, by the rubbing of the cattle, is totally disregarded. Such, however, is the opinion entertained of it in another fruit district, that, as has been before stated, it is usually an article in their lease, that the plantations shall not be stocked at all, principally with a view to obviate this mischief. Here are two extremes, perhaps both equally remote from the point of good management. This much is certain, that the continuing the fences round the trees in the grass-grounds, and keeping the stock of every kind off the tillage, after the crops are removed, and when fallowed, would be amply recompensed by the growth and fruitfulness of the trees.

The inconveniences attending the gathering and sorting of the fruit from orchards, where they are growing promiscuously, are so evident, that future planters will undoubtedly avoid them, by appropriating separate spots to the several varieties.

The present generation has to regret a great want of attention in their predecessors, in the choice of their fruits, in a

considerable proportion of the aggregate plantation, a total neglect; this consisting of the bare spontaneous production of accident, notwithstanding they had fruits to choose from, perhaps equal to any art can produce. A just idea of the importance of this neglect, may be formed, by comparing the great difference in the price the better and inferior sorts bear, and will no doubt have due influence with the planter of the present day. Indifference in this point, would be the more unpardonable, as it is not for future ages alone he plants; he often lives to share abundantly the chearing offspring of his labour.

When young orchards are planted out of the hop-grounds, and the distances now recommended are observed, might not cherries be advantageously planted in the rows between the apple trees? It is said to be practised in some fruit districts, and with success. They bear, and reach their full growth, much sooner than the latter, and produce a very lucrative crop. In the neighbourhood of Worcester, there are about twenty acres in cherry orchards, now in perfection; ten of which are known to be lett for one hundred pounds per ann. the remaining ten are not in any respect inferior to the others, and probably bring, nearly at least, the same rent; and yet, such is the demand for the fruit, that the market, three times a week, opens by three or four o'clock in the morning, and is generally cleared before seven.

It appears extraordinary, that a doubt can possibly arise, whether or no the two additional crops of the fruit and hop districts, operate ultimately to the advantage of the occupiers. In this county, about six thousand acres of hop-ground, and perhaps a third of this quantity (two thousand acres) may be estimated as adequate to the injury the ground crops sustain from the trees; these making together eight thousand acres; and may be supposed to produce this year, calculating by the former statement of the exports, as follows:—By hops (the lowest average price cannot be set down, now, at less than

than 3l. 10s.) 126,000l.;—by fruit, 11,625l.;—by cyder, 30,000l.*;—by perry, at the average price of 5l. 10l. per hogshead, 5,500l.; amounting in the whole to 173,125l.; that is, considerably more than 21l. per acre. To this must be added, a saving in malt to a very considerable amount; and yet, a doubt not only may, but is very generally entertained, whether or not the tenantry at large is benefited by these crops. The same number of acres, under a common course of husbandry, in no instance, in this neighbourhood, produce a sum equal to this, even after allowing for the more frequent failures to which these are liable. To state this circumstance, is all that can be done; to investigate the subject fully, would exceed the limits of this Report; one circumstance, however, relating to the fruit, as more particularly striking, may be here mentioned, in addition to what has been said before concerning the hops—this is, that the fruit plantations have not been hitherto considered, by the more numerous part of the planters, as producing an article for the market. Provided they are fortunate enough to get the enormous supply of liquor necessary for the home consumption, without having recourse to the maltster, they rest contented. It may be urged, that the market for these liquors

* Price of cyder, such as in general used in London, and in public-houses, from 1781 to 1794, communicated by Mr. Hooper.

PER HOGSHEAD OF 110 GALLONS.		PER HOGSHEAD OF 110 GALLONS.	
1769	21 Shillings.	1782	52 Shillings.
1770	35	1783	80
1771	40	1784	25
1772	63	1785	80
1773	90	1786	100
1774	35	1787	90
1775	32	1788	21
1776	21	1789	48
1777	100	1790	45
1778	35	1791	46
1779	60	1792	60
1780	19	1793	52 6d.
1781	50		

is not very extensive; but does not the high price at which the more pleasant sorts are sold, chiefly contribute to confine it? Those that are rough, more plentiful, and cheaper, are not a marketable article out of the plantations; it requires a long habit, to reconcile the palate to them.

CONCLUSION.

In concluding this account of the rural œconomy of this beautiful county, the person to whose lot its survey has fallen, wishes to observe, that throughout the whole, it has been his endeavour to state the several circumstances of it, in as accurate and distinct a light as possible: but little claim of originality is made, and he trusts no charge of inaccuracy, from a neglect of earnest exertion, can be brought. Where any improvement is proposed, it is the result of frequent consultation with some of its first managers; it is their practice particularized, in hopes that, if these sheets ever reach the hands of the less informed tenantry, they may have that merit, at least, of directing their attention where they cannot imitate without improvement.

To the nobility and gentry, and several of the principal tenantry, many thanks are due, for a most favourable reception, and kind assistance*; to the Board, and their respectable

* The only particulars, about which the Author found any difficulty in procuring information, was in regard to hops and fruit. The planters of these, were in general inclined to be tenacious of their knowledge, at least few, actually engaged in the business of raising either, seemed disposed to be very communicative upon the subject. This, it is believed, might be principally owing to the apprehension of taxation, the cyder tax not being yet forgot. This jealousy, however, it is to be hoped, will soon be removed, as it is only by a free communication of ideas, and comparing the result of experiments made in different parts of the kingdom, that either hop plantations, or orchards, or the making of cyder and perry, or indeed any other art, can be much improved. It was principally with a view of comparing the practices of Devonshire and Worcestershire,

ble President, some apology, perhaps, for the lateness of the return: this, however, was, in a great measure, influenced by circumstances not to be remedied either by zeal or industry.

cestershire, in regard to fruit, and the liquors thence extracted, that the Author was sent by the Board of Agriculture from the one county to the other; and from the information accumulated upon the subject, by the survey of this and of other districts where hops and fruit are attended to, the art of raising, and the proper management of both, will probably be brought to perfection.

APPENDIX.

NUMBER 1.

MR. TURNER'S ACCOUNT OF THE WATER MEADOWS ON THE FOLEY ESTA BEING THE SUBSTANCE OF A LETTER TO MR. POMEROY.

THE plan of watering the lands in this neighbourhood, belonging to the Fo family, is shortly as follows:—It is in the first place necessary to observe, that al mills on the brook, or stream of water, as soon as it enters on their property, un unites with the river Stour, for near three miles, belongs to them, of course they the controul of the water. At the upper end of the stream, are three or four w courses, made for several miles upon a level to the different farms that are watered, the old stream divided in a manner proportioned to the quantity of land each cou intended to water. The farms that receive this valuable acquisition, are eight or and the quantity of land watered upon the whole of them, is between three and hundred acres. The quality of the soil, in general, is a very light sand, and n parts of it mixed with gravel: by the division of the stream as above, each farm h portion of water repeated from two days to a week, every three weeks throughou year; and in order to prevent the least dispute between the tenants, respecting the tribution of the water, a person is appointed to turn it from one person's land to next in turn, at certain stated times fixed for this purpose.

The farmer then takes to the management of it, and floods such part of his lan is generally prepared to receive it. There are very few of them that mow the whc the land they water, but mow and graze it alternately, in such a manner that the the water at all seasons of the year in their turn. A very considerable quantity of in this neighbourhood, is well situated to receive this improvement, if the stream sufficient for the purpose, besides the number of acres already mentioned, the gr part of which was formerly a very poor arable land, and not worth more than five lings an acre. The industrious farmers are very attentive to the use of the water the gutters are cut for floating, with the use of a water-level, and the more num the gutters are, the greater quantity of grass the land produces. In some situa with the use of little stop-gates, the gutters are cut deep enough to drain the land are made to float: this circumstance, where the land requires it, is worthy of gre tention. The whole plan of irrigation, where practised (and very few farms in but will admit of it in some degree), is beyond a doubt the first, and greatest imp ment, at the least expence, ever discovered.

NUMBER II.

MR. DARKE'S ACCOUNT OF THE AGRICULTURAL STATE OF HIS NEIGHBOURHOOD.

The following paper, drawn up by JOHN DARKE, Esq. contains so many useful observations, that it was thought advisable to print it separately.

Bredon consists of seven hamlets, Mitton, Hardwick, Kinsham, Norton, Westmancoate and Cutsdean. Five of these hamlets are in open fields; the soil very various, nearly one-half bears turnips tolerably, the other parts are clayey gravel; it all bears clover well: we have pebbles in every soil.

By our situation, we are much exposed to the south-west winds, having few intervening hills between this place and the Bristol Channel. Situation, the west end of Bredon hill, about three miles from Tewksbury in Gloucestershire: the southern part of the parish runs up within one hundred yards of that town. The Earl of COVENTRY has six hundred acres of inclosed land at Mitton, in a ring-fence, not to be equalled in richness and fine produce: to this farm the plough is a stranger; the soil a black loam. The parish, for five miles on the west, is bounded by the navigable river Avon, and by the river Carran for three miles on the east.

The lands being in common fields, and property much intermixed, there can be of course but little experimental husbandry; being, by custom, tied down to three crops and a fallow: first, barley, second year, beans (which always produce abundantly), or clover or vetches, which are ate off as green crops by the horses, tied with stakes and ropes, made with the rhind of wych hazle (a nasty habit peculiar to the Vale of Evesham); yet there are well-informed gentlemen, who highly commend this mode of husbandry. The third, wheat, which is sown on the bean stubble, or clover sward and this mode invariably succeeds better than sowing it on fallow ground—a doctrine in general disbelieved by those who are strangers to the Vale of Evesham, so remarkable for its high ridges and deep furrows.

The mixture of property in our fields, prevents our land being drained, and one negligent farmer, from not opening his drains, will frequently flood the lands of ten that lie above, to the very great loss of his neighbours, and community at large. Add to this, that although our lands are naturally well-adapted to the breed of sheep, yet the draining, &c. is so little attended to in general, that out of at least one thousand sheep annually pastured in our open fields, not more than forty, on an average, are annually drawn out for slaughter, or other uses: infectious disorders, rot, scab, &c. sweep them off, which would not be the case if property was separated. Draining the lands, is the principal, and first good effect from inclosures. In our uninclosed hamlets, the meadow and pasture are fairly proportioned to the arable, which is, on a computation, about one thousand six hundred acres; the pasture one thousand three hundred, and the Avon meadows eight hundred. There are, besides, five hundred acres of commonable lands which are of little or no value; being over-stocked, produce a beggarly breed of sheep of no use to the owner, for being constantly brought off the high lands in autumn,

e and feed on the lands subject to floods, they are there baned, which consequently nts the public from that produce which might assist population and commerce.

e farms are from five hundred to ten pounds annually.

ne of the finest pastures at Mitton, and Bredon, are employed in feeding oxen of est Herefordshire and Devonshire sorts, for the London markets. We likewise some of the best Gloucestershire hill sheep; we touched on the Leicestershire, und them (though handsome), rather too small for our rich pasture. We feed sheep we breed, for the London markets. Our other pastures are used, in gen n dairies; some of these are employed in making butter for the Birmingham m and a skim cheese they call two meals, or seconds; these sell for eight shillings wt. less than the one meal, or best making. The dairies that make best cheese, no butter, but depend entirely on the cheese. Where they make the skim cheese, nd is deemed too rich for one meal, as it causes it to heave, and that produces a rank flavour.

e have no new made pastures; the old ones abound with honey suckle, yellow y, crested dogstail, perennial rye-grass, &c. Being an extensive parish, in some ts, where are few or no commons, our breeds are good; and we have a gen farmer, a Mr. COTHER, who has been crossing some well-bred wide horned cows a Devonshire bull: I believe this is his second year; and what young cattle and I have seen, are very promising for size and beauty.

other hamlets, there are commons for young cattle; these are usually overstocked quently the breeds of no note; nor will they be improved, unless the common ields are inclosed; we should then vie with our neighbours, in the best breeds meadows, rich from the washing of the manure and sheep-folds of Warwickshire, e Vale of Evesham, would naturally enlarge the growth of our stock, and excite emulation in our breeds.

one instance only, the water of the fold-yard is carried over a large field, evidently to advantage. Our meadows are wonderfully enriched, and at the same time too fre- ly damaged, by the overflowing of the river Avon, which extends itself near six through this parish. We on the spot, conceive our meadows to be the first flooded, o lie the longest under water, of any in this kingdom. Severn is our natural drain; we want in wet seasons more sluices, or gates, or wares (which might be easily), to conduct our overflow of water from Avon to Severn; could we be unani- in the method of effecting it, the expence would be easy: nothing would im- this part of our country, or render us such essential service. Now I am noticing lows, if ever an inclosure takes place, the meadows should be lotted, to lay pro- together, but not divided by fences.

ur land produces good crops of wheat, barley, beans, pease, clover, &c. as the ns suit each or either.

he crops of turnips are in general very good, on those parts that suit the cultiva- we have lately practised hoeing, and find it add at least one-third to the value of rop. We eat the greatest part off with sheep, and many are haled into the farm- for cattle; in wet seasons, our sheep tread the lands, owing to the deep loam and soil, to the prejudice of our barley crop. Notwithstanding this, we prefer the

 sheep

sheep for this business, as it firms the land; besides this, it backens the mathon poppies, and other light weeds of that species, and prevents these light weeds from getting too powerful in the succeeding crops.

Our usage, or system, time immemorial, has been, three crops and a fallow; during the fallow year, the lands are a common pasture for sheep.

Nature has been so bountiful to us, we often put our manure immediately on the land from the fold-yard; but when we spare it from the arable for the pasture, we make dung-hills, which we seldom turn more than once; and when we clean our ditches and pools, mix the soil with it. We are not famous for mixens, nor do we use lime, which, in many parts of this country, is the first and best manure.

The ploughs and waggons that are made in our hamlets, are, as we here term it (out of the way things); but the first waggons in the world, are the Gloucestershire hill farmers' waggons: these are low and wide, calculated to carry large loads of grain in the straw, in a snug manner, at the same time they run so pleasant, that a jack-ass would draw a ton weight for miles, with ease.—JONES, of Withington, near Frog Mill, with many others, is noted for making them. The ploughs are natives, and such as are seen no where but in the Vale of Evesham. Speaking of myself, I am no experimental farmer, or possessed with any mechanical genius, I therefore use them as my father did before me; they are made with wood, except the share and coulter, very long in the tails, throck and shelve board, a load for a team; and though I own their aukward appearance, I have never had prudence to try other sorts, from an ill-grounded habit, or conceit, that no other plough would answer in our steep ridges, or turn its furrow so regular and true. Four horses at length, are our usual plough team; only one ox team; this is drawn at length, with open collars, and horse harness, and answers well.

Wheat is sown from the middle of October to the end of November, under furrow broad-cast, and trod in with men; on the clover sward we harrow it in; some little drilled. Beans are all set by line: we prefer setting them north and south, to have the benefit of the sun betwixt the rows; these are hoed three times, with the gardener's coming hoe; the large tick bean is used, and are set single by women, who have twenty-pence for setting nine gallons and a quart, the customary bushel; allowed a quart of cyder to each woman per day—good hands get from fourteen-pence to twenty-pence per day; produce, sufficient to satisfy the cultivator.

I have every reason to speak in praise of inclosures: about twenty years back, I obtained an act to inclose a parish in Gloucestershire, of strong clay lands; my allotment was about four hundred and fifty-three acres, which, in its uninclosed state, averaged about eight shillings per acre, and will now bring upwards of thirty shillings. We must allow some part of the increase to the times, but the improvement is greatly owing to its turning from indifferent arable to most excellent pasture. Before the inclosure, the cattle and sheep were infamous; they are now of the first quality. My zeal for inclosures has carried me from Worcestershire to Gloucestershire. I hope the digression will be excused. From my commencement of farming, I have converted five hundred acres and upwards, of arable land, into pasture, and greatly increased its value. I lay down with white honey suckle, only eight or ten pounds to an acre. All other seeds

seeds, except the trefoil, are injurious in these soils—six or eight pounds of milled trefoil to the acre. Trefoil assists for the first year only.

Very few inclosures have been made in this district of the county; but as we lie at the extreme southern part, we are intersected on all sides by Gloucestershire, where there have been various inclosures, some very near; and in general, where they have been completed fifteen or twenty years, property is trebled, the lands drained; and if the land has not been converted into pasture, the produce of grain very much increased; where converted to pasture, the stock of cattle and sheep wonderfully improved. Where there are large commons, advantages are innumerable, to population as well as cultivation, and instead of a horde of pilferers, you obtain a skilful race, as well of mechanics as other labourers.

Our inclosures on the hills are from forty to twenty acres; in the vale, from thirty to ten, with smaller closes about the homestead, for orchards, and other conveniencies.—About two years rent is usually allowed for inclosing large common fields.

Population is generally increased, as much in our inclosed parishes as our uninclosed: in our next parish, Kemerton, in Gloucestershire, it is evidently so, and many new houses built.

I observed before, five of our hamlets are common fields. An inclosure was proposed by the rector, about nineteen or twenty years since; his terms I approved, but many of our neighbours were violent in opposing it, and it dropped; since that time, the advowson and rectory have never been in the same hands, and the late and present rector, having only life interests, and otherwise not men of business, no plan or offer of the kind has been attempted.

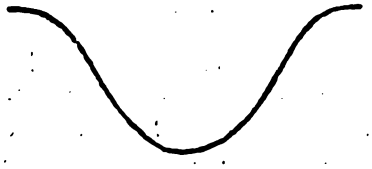
Mr. KEYSALL, one of the partners in CHILD's house, has lately purchased the advowson. I hope he will see his interest, in inclosing one of the richest parishes in the county of Worcester; and here it may be proper to observe, that Cutsdean (one of our hamlets), was inclosed at the time I mentioned the attempt was made to inclose Bredon, and though situated on Cotswold Hills, near Stow, sixteen miles from hence, the living improved sixty pounds per annum for twenty-one years, viz. from forty pounds to one hundred pounds; and in three years time, will lett for two hundred pounds per annum; as the present lease expires.

Our commons chiefly lie high; four hundred acres in extent. Would make excellent tillage, bear turnips, seeds, barley, wheat, feed good sheep, &c. if cultivated in the Gloucestershire hill husbandry (there the barren rocks are made almost as profitable as the best vale soil); another part would make excellent pasture; there are, besides, twenty acres of scar and rock, that would answer well in plantation, and greatly beautify the vale below it.

To men skilled in shepherding, and fothering our stalled oxen, we give from 11s. to 12s. per week; our carters, from 8s. to 10s.; the taskers, or threshers, mostly by the piece, earn from 8s. to 9s.; old men, and moderate hands, 6s. per week; mowing grass, 18d. per acre, with a gallon of beer, or best cyder; reaping wheat, from 5s. to 6s. per acre, with a gallon of beer, &c. women from 6d. to 7d. per day, no beer; mason and carpenters, 20d. Wages increasing. Harvest month we pay our labourers 56s. and beer, best hands.

In common fields, little nor no attention is paid to drains. The Severn is our mai drain; the Avon the first conductor to it; our brooks and ditches leading to the Avon change their owners as the lands vary: consequently the cleansing is not regularly at tended to. Much draining has been done in inclosed fields; some in the open fields We prefer the stone-drain; what was done formerly with wood, is entirely worn out and in gravelly soil, it goes very soon indeed.

The most skilful drainer I know in Worcestershire, is the present Earl of COVENTRY: his part of the county was a morass, not half a century back, and is at this present time (though formerly a moorish, fœtid soil), perfectly dry, sound for sheep, an other cattle. He has but few under-drains. His principal drains are open formed, thus



turfed to the bottom, so that cattle can graze without any loss of herbage; no wate ever stands; and Croome is now noted for its dryness, as well as being well kept; an although the house is surrounded with fourteen hundred acres, under his ow inspection, you do not see a tree, bush, or thistle growing upon it, undesigned o out of place. It may very justly be stiled a pattern farm to this kingdom, from it well-formed plantations, and its judicious and extensive drains. He has a beautifu breed of the Holderness, or Yorkshire cattle.

Paring and burning is little used, but where it is, no management equals it; th farmers on our hills are shy of acknowledging its benefits.

There is not much wood; the tenants, without restrictive covenants, in general deface our neighbourhood in a hideous manner. Elm is the prevailing tree, in short the weed of the country; it would grow to an immense size, if left unmolested, instea of which, they are cropped and lopped, either to find fuel for the merciless farmer, o stripped of their boughs to the top, to shew the young man's skill in climbing.

Our markets are well supplied, and very regular; the price of provisions bears a pro portion with our tradesmen's bills; our labourers are well fed and provided for: with out these are made comfortable, our lands would be of little value. The rise or fall o provisions depends on various circumstances.

The roads are in a very improving state—we border on perfection. We have neighbour, Mr. MARTIN (member for Tewksbury), who has amply supplied u with advice, with large sums of money, and unremitted attention: by throwing in ou mites, instead of being proverbially famed for bad roads round Bredon hill, we are nov as much noted for good ones. Our method is, to form them like a half-barrel; in fals ground we use wood or furze; large stone, then smaller stone, covered with gravel, thic enough to prevent the frost tearing the stone; this mode, with attention, gives a firm road. As I have before noted that good roads make good farmers, would it not be a pro per proceeding in the Board of Agriculture, to petition Parliament, in its justice to tal

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into due consideration the heavy fees of the House, in regard to road acts and inclosing bills, hoping it would not be beneath the dignity of that Honourable Assembly to moderate those fees, as in their wisdom they might judge fit?

We rather excel in our farm houses, which are chiefly situated in villages near the commom fields.

Leases are by no means general; but when a tenant takes a farm in our open field, he holds it by custom for four years; and there is the greatest reason why this custom should be lawful: three crops and a fallow conclude a round of four years, and as the odd marks vary in quantity, in four years, he has had crops of all the different grains, and gets his average. His entrance is on the green and fallows at Lady-day; being deprived of his crop the first year, he finishes the crop after his rent ceases. There are some leases on our inclosed farms, but none restrictive, as to trees. In MARSHALL's minutes on Gloucestershire, and the Vale of Evesham, I supplied him with a lease, I then conceived well drawn; it is there copied, and may be referred to.

Bredon is situated in the neighbourhood of Tewksbury, eminent for its stocking manufactory; of course we have from sixty to eighty frames employed in our different hamlets; these engage about one hundred hands; this certainly enlarges the poor rate, which I balance by our having an excellent market at Tewksbury, as well for our large, as our small productions. This manufactory is in high credit, and I have lately heard some of the principal factors say, they could not supply their orders so fast as they received them.

We excel in nothing so much as setting beans; it is superior to drilling in its most perfect state. Our inclosed lands make cattle fat.

Mend the roads, and inclose the fields—these are the best means of improvement. We are tolerably far north—shew us an advantage, and our eyes are open. We have an excellent example for perspicuity and attention, at the head of our county; and I have it from the best authority, that the late Judge PERROTT used frequently to say, that Lord COVENTRY had brought a million of money into Worcestershire, from his skilful exertions in making the roads through the county.

The breed of cattle and sheep are not sufficiently attended to, though we have amongst us most excellent, as well of sheep as cattle.

In the upper part of the county, near Lord FOLEY's and Sir EDWARD WINNINGTON's, particularly amongst their tenants, are as well-bred cows and oxen as the county of Hereford* can produce. Messrs. WHITCOMB of Orleton, NASH of Homcastle, PROSSER of Shelsley, HARRIS of Stamford, WALKER of Burton, HAYWOODS of Clifton, WEST of Hom Bridge, with many others, breed most excellent cattle. In the breed of sheep, Messrs. PENRICE of Sawford, WAKEMAN of Beckford, PARROTT and OLDACRE of Fladbury, GREESLEY of Salwarp, CHARLOTTE, BLUCK, and OSBORNE, of Elmly, RAYER of Cutsdean, ORSBORNE of Broadway, with many others, breed most useful, and excel in this district.

* Mr. LACHMERE will average more than thirty pounds each, for thirty oxen, all bred in Herefordshire, in this year's sale. Mr WESKER's oxen, who averaged upwards of forty pounds each, for fourteen, in last December, were all Herefordshire bred; and I am now in possession of an ox, bred in that county, remarkably large, and well made. I purpose keeping till next December, when I will measurse and weigh, and perhaps take a drawing off; and if I should, will send it to Sir JOHN SINCLAIR, for the inspection of the Board.

To

To conclude, I have read with great pleasure, the PRESIDENT's Address to the board of Agriculture, on the 29th of July, 1794. I credit all the positions therein ated, to their utmost extent. A speedy and general inclosure bill, would ripen all these chemes for the improvement of the country, as rapidly as could be wished for.

NUMBER III.

The following intelligent observations, by Mr. OLDAHER, of Fladbury, will be found to merit attention.

The soils near Fladbury are various, such as deep sand, light sand, gravel, loam, clay, a red marl, and by the sides of the Avon, and other rivers and brooks, are meadows of a loamy clay.

The lands in this neighbourhood are principally occupied by tenants; the uninclosed are in general small; the inclosed farms are mostly from sixty to one hundred and fifty acres, but there are some from two to five and six hundred acres each.

The fields of the uninclosed parishes have a certain quantity always in tillage, but the inclosed farms are employed sometimes in tillage, and sometimes in pasture, according to the judgment of the farmer, the nature of the soil, &c.

Red and white clover, and trefoil, are mostly cultivated in equal quantities, five pounds each to an acre, with about two pecks of rye-grass (the latter I have myself given up, till I find I am wrong, and use the other sorts). This mixture is used in the inclosed farms, where there is a small portion of old pasture, these seeds answering the end of hay or pasture, and enables the farmer to summer a considerable stock of cattle, sheep, &c. It is usual to let the land lay with it as long as it will bear much grass, which will be about two or three years;—if the land is not too poor, it is then broken up with the turf plough (more particularly described hereafter), and planted with beans or pease, after which it is sown with wheat at the second ploughing; then fallowed for barley, and down with seeds again. But where a farm has a sufficient quantity of meadow, and old pasture land, the tillage is generally divided into four equal parts; one part being, after a fallow, sown with barley, and the half of it is sown with red clover only, principally for tying off with horses upon the land, or eaten green in the stable. The first practice is a most excellent preparation for wheat upon clay lands; the other half of the barley piece is sown with beans, pease, or vetches, according to the soil, or necessity for more green food; as the eating of vetches upon the land is of infinite service to the following crop; so that the second crop may be clover, vetches, beans, or pease, or any one or more. These are followed by a wheat crop. The custom is, in this system of husbandry, to put all the manure on that part of the barley

stubble

stubble that is not designed for clover and vetches, and ploughed in for beans or pease. Sheep are the principal stock raised in the neighbourhood: the Leicestershire sort are the most prevailing: I know of none that would answer better here.

Here is no land watered, except about eighty acres belonging to GEORGE PERROTT, Esq.; nor do I know much land capable of that improvement.

Wheat, beans, barley, pease, oats, and vetches, the latter principally for green food, are the crops in general raised.

The uninclosed lands are cultivated differently, according to ancient custom, such as crop and fallow, namely, wheat every other year. This custom prevails only on poor land, which lies a great way from the fold-yard, so as to get no other assistance, except sheep penning. In some other fields, they get two crops and a fallow, namely, wheat, and then beans and fallow. The above custom is mostly practised on strong heavy lands; but the prevailing practice, almost generally, is three crops and a fallow; upon the latter follows barley for the first; beans, pease, vetches or red clover, for the second, and wheat for the third. Upon all light lands that will bear treading with sheep, turnips are cultivated in great perfection. Clover answers well upon all soils that are not very poor; and turnips have much improved the light lands.

I never yet saw a farm, clean and in good heart, unless summer fallowing was practised after every succession of crops.

The produce of the fold-yard is almost the only manure used in these parts. Lime is too dear to be generally used. I never saw much improvement from that article in this neighbourhood.

The distance from great towns is too great to get manure from, of course it is not much a practice to sell hay or straw; but great attention is paid to make the most of what the farm produces, into dung-hills, which is conveyed annually on the land, some farmers putting it on the fallows after Midsummer, and ploughing in at the second ploughing; others, upon the barley stubbles for beans, &c. The last practice I think the best.

The sort of plough used here, is the common strait heavy plough, without wheels, as is peculiar to the Vale of Evesham. Many other sorts have been introduced, but none found to answer. Six-inch wheeled carts, and three-inch wheeled waggons, like most other countries.

Horses are generally used; oxen sometimes, and drawn single, like horses; but I never knew a farmer in the Vale of Evesham, but what was tired of them after a few years practice.

Wheat is sown as early after the the first of October as the rains fall to make it wet enough; but if not sown till Christmas, I have frequently seen good crops. Beans and pease are planted the latter end of February, and beginning of March; barley in April; winter vetches the latter end of September; and summer vetches in March, April, and beginning of May, for a succession. I have always had the best crops from winter vetches. Harvest commences from the beginning to the twentieth of August; varied by the season, soil and climate.

The land is mostly inclosed. In regard to new inclosures, I have known farms not worth the old rent after an inclosure; and I have known others, nearly double the rent; but this must arise from the high or the low price they were lett at before the inclosure took place. It can hardly be said to have paid common interest for the expence attending it in this neighbourhood. Where a proprietor had several small farms, to save he expence of dividing into small pieces, and repairing a number of small old buildings, y turning the whole into one, he may perhaps find an advantage. How far such ractices, which must tend to depopulate, and in a measure monopolize, are a national oncern, I will not pretend to determine. In poor lands, when inclosed, the quality nd quantity of corn will increase; but in good lands, the quality, when the fences are rown up, will not be so good, and the quantity no more. There is certainly a great pportunity to improve stock, in an inclosed farm, which cannot be the case in uninclosed fields and commons.

The size of the inclosures very various, proportioned to the size of the farm; most armers wish to have their land divided into eight or ten parts, or more, according to he nature or difference of soils. The expence of first planting and fencing on each side the quicksets, will be about nine shillings the perch (of eight yards running); and the expence after, in cleaning, repairing fences, &c. will be about three shillings or four shillings more; but many farms have a sufficient quantity of materials, without buying, for post and rails, which will be a saving of their value. It is reckoned to take about five years rent to inclose a farm.

In the Vale of Evesham, and neighbourhood, the inclosures have very much decreased population, and every year will have still less occasion for labourers. This will be more the case, where the farms are converted from small into large ones; but where large commons and waste lands only have been inclosed, it must tend to increase population.

There are some few open fields in this neighbourhood, but I do not hear of any application to be made for dividing them.

The extent of waste lands is but trifling, and those are depastured with sheep, cows, or horses, a certain number to what is called a yard-land, which number varies according to an old custom: some parishes stock sixty sheep to a yard-land, and others perhaps forty; and where a farmer has not a proper quantity of each sort, one cow or horse is reckoned equal to three sheep; so that he stocks with either sheep or cattle, as is convenient to him.

The waste lands are capable of little improvement, as they are generally the poorest lands, that will not pay to till, but are almost the only support of the flocks of sheep, which the farmer keeps for the folding upon his common tilled land. This custom is an excellent manure for one crop, and is the only advantage made by keeping of sheep in this way. The commons might, many of them, be improved by draining, fencing, &c. as the lands generally lie low, and are much subject to rot in wet seasons. The poorest part of them are often covered with furze or thorns, which are useful in many respects. I remember to have seen an Act of Parliament that passed about twenty years ago, that empowered a certain majority of occupiers, in number and value, to oblige the minority to certain regulations for the term of six years, which Act I thought a

very

very good one, and gave an opportunity of making considerable improvements in open fields, such as in draining, fencing, &c.

The rate of wages is by the day, twelve-pence and beer, or fourteen-pence and no beer;—the time of working from six till six, in summer; in the winter, as long as they can see to work. Corn is threshed by the bushel, namely, wheat at four-pence; barley about two-pence halfpenny; beans two-pence. Grass is cut at twenty-pence an acre, and six quarts of beer. Labour in hay-making is sixteen-pence to eighteen-pence, and beer. Harvest wages are thirty shillings and maintenance; or three pounds and beer. Instead of beer, I give five pecks of malt and one pound of hops, to each labourer.

Draining is not much practised in common land, but pretty much in inclosures: in clay soils, turf is used; in others, wood or stones, which is most convenient; the latter is most lasting.

Paring and burning is but little practised here, as there are but few old lands to break up, and there are but a few roots in new turf, to make ashes. If a farmer has a piece of strong turf, he generally plants it with beans or flax, at one ploughing, with a turf plough, a sort of plough that has two shares, one before and above the other: the first takes off about an inch of the turf, and turns it into the furrow after the horses; the next share, about eighteen inches behind, throws on the top of the turf a clean furrow of mould, about five inches thick; by the next year, the turf is sufficiently meliorated, and is then sown with wheat. This practice is preferred to paring and burning.

Here are some woods, which are regularly cut, in rotation, leaving young trees, for timber, at certain distances; but the exact practice I am not acquainted with.

The price of provisions here, is at present, beef at three-pence halfpenny per pound, mutton four-pence halfpenny, wheat seven shillings and six-pence (thirty-six quarts to the bushel), barley five shillings and ten-pence, beans six shillings. The measure varies in this neighbourhood considerably; it appears to me to have been caused originally by the quality of the produce of the country, one farmer wishing to sell for as much money as another. In the Vale of Evesham, and about the neighbourhood of Worcester, where the quality is fine, the measure used is thirty-six quarts; but on the Cotswold Hills, and all cold climates, such as parts of Herefordshire, Shropshire and Wales, it is thirty-eight or thirty-nine quarts, which extra measure hardly makes out for the deficiency in quality, especially in some wet seasons, it being late ripe on these cold lands, is thick skinned of course, and never dry, nor of a good colour.

I will here beg leave to give my opinion, that a general regulation by weight, would be much preferable to equalizing the measure, for several reasons; but a most principal one is, it would be a much fairer way to set an assize of bread from, than measure; for I know very well, that a bushel of wheat in Worcestershire, of the growth of 1791 or 1793, will make on the average, seven pound of dough, or six pound of bread, more than the produce of 1792. I am not able to say, whether provisions are likely to rise or fall.

The public roads are in pretty good order; but the private roads, in general, are much neglected. I know of no improvement in the making of roads, that has been lately found out.

The farm-houses and offices are not on a good construction; and the situation almost generally ill chosen, which is often attended with great loss to the occupier. Houses, &c. for feeding cattle in winter, should be encouraged, as such feeding adds greatly to the dung-hill, both in quantity and quality.

The leases commonly granted, are for twenty-one years; but many, according to the circumstances and opinion of the proprietors. Covenants ought, and generally do, restrict tenants from getting more than three crops without a clean summer's fallow. I do not see how the rotation of crops can be laid down in leases; for often, when a wheat or bean crop have failed in spring, from the grub or otherwise, I have seen spring crops put in successfully upon one ploughing. But the farmer should be confined to spend the whole produce on the premises; manage and depasture properly, and to leave the farm, at the expiration of his lease, in such a situation as will be a fair entrance to a succeeding occupier.

I have seen two farmers upon the same sort of soil, manage their land very differently, according to the custom of each county; yet both live well, and both get money.

The large farmers have certainly a turn to improvement: the small ones have not an opportunity; but there are fifty inventions introduced, and the sensible farmer unfortunately sees hardly one that will answer. Proprietors granting leases for a sufficient length of time, would tend to excite a spirit of improvement in the occupiers, not only in the tillage land, but in the grass land and planting. The latter practice I am sorry to see neglected; as in most farms there are some pieces, or placks, that might be fixed for some kind of plantation. The improvement of old quickset fences, I think the country more behind in, than in most others.

The improvement in stock, is rapidly increasing—I mean in the beast and sheep kind: the breed of horses (that most useful of all animals), leaves room for great improvement. If gentlemen of property would but keep stallions of the true useful sort, for their tenants and neighbours, paying for the same, the breed might be improved. I will not pretend to point out what sort would be more useful, only, that the clean legged, free from hair as much as possible, are easily kept clean, and are most healthy.

There is one inconvenience much against improvements in farms, where the old inclosures run very small, as from one to three or four acres each, intermixed, and the owners not inclined to accommodate each other, which I am very often sorry to see; but when they are disposed so to do, circumstances often occur to prevent it, such as part belonging to leasehold property, and part freehold. An Act of Parliament, appointing Commissioners for such purposes, in general might remedy it.

NUMBER

NUMBER IV.

OBSERVATIONS, BY MR. LUCAS, OF HANBURY, ON THE KEEPING OF LAND IN PERPETUAL TILLAGE.

THAT ruinous system of keeping land in a state of constant tillage, without any intermediate rest by pasturing, is but too common throughout the county of Worcester (making only a few exceptions). The disproportion of tillage converted into a temporary pasture for two or three years, in order to renovate and acquire fresh nutriment by the dung of sheep and other animals, is only from ten to twelve acres in one hundred; whereas it ought, and should be, forty-five in one hundred, at least; but much better it was fifty. The system pursued, is not the same in all parts of the county, but changes as the soil varies in different districts; yet all manifestly tending to the same destructive purposes (the impoverishment of the land). It is customary on the heavy soils, after a summer fallow, to sow wheat for a first crop;—the second crop, beans: the ensuing winter, after the beans, the land is prepared for barley; and on the third crop of barley, seeds are sown, generally a mixture of clover and trefoil, but sometimes only red clover. The ensuing summer the seeds are mown for fodder, and sometimes, as unfrequently, they are mown a second time for seed. The Michaelmas following, being the fifth year from the fallow, the land is broken up, and wheat planted thereon; and so on progressively, for any number of years. The consequences of this system of husbandry is, the land becomes exhausted of its natural goodness; foul, impoverished, subject to all sorts of weeds, and a regular diminution of its value, in so great a degree, that supposing, for one instance, a farmer was put in possession of a certain quantity of land, in so high a state of cultivation as to produce from twenty-five to twenty-seven or twenty-eight bushels of wheat per acre, and so in proportion of barley, oats, beans, &c. and he was allowed to pursue the aforementioned plan of management for twenty years, there is not the least shadow of a doubt, but the produce of that land would be diminished at the end of the term, seven or eight bushels of wheat per acre, and so in proportion of all other grain. And again, look at this system of husbandry in another point of view—if a gentleman is a proprietor of an estate (tillage), occupied by a tenant of the beforementioned description, supposing him to be certain of quitting at the expiration of a limited time, the gentleman has the mortification to find his estate all in a state of tillage, impoverished, foul, exhausted of nutriment, diminished in value, and, to the succeeding tenant, incapable of any thing but a general fallow, and a total change in the system of agriculture. In short, very considerable allowances are frequently made, to induce a man to succeed such a miserable sloven and robber.

The real cause of all this mischief, to the land proprietor, to the community, and particularly to posterity, is a very general and obvious defect in the covenant between landlord and tenant, wherein the tenant is allowed almost an unlimited power of ploughing the tillage how he pleases, excepting a few flimsy restrictions, which generally con-

NUMBER V.

RULES AND REGULATIONS FOR THE ESTABLISHMENT OF A SOCIETY TO BE CALLED THE VALE OF EVESHAM ROAD CLUB.

ARTICLE I.

THAT this Society shall commence on the first Thursday in September, 1792, and the members thereof consist of persons resident in the neighbourhood of Bredon Hill.

II. That the members shall dine together on the said first Thursday in September 1792, and in every succeeding month, at half past two o'clock, at the undermentioned places, in rotation, viz.

The first Thursday in		The first Thursday in	
September,	Crown in Evesham	March,	Swan in Tewkesbury.
October,	Angel in Pershore.	April,	White Hart in Winchcomb.
November,	Swan in Tewkesbury.	May,	Crown in Evesham.
December,	White Hart in Winchcomb.	June,	Angel in Pershore.
January,	Crown at Evesham.	July,	Swan in Tewkesbury.
February,	Angel in Pershore.	August,	White Hart in Winchcomb.

Dinner to be provided at half-a-crown per head, and half-a-crown for liquor, &c. so that the reckoning shall not exceed five shillings each, when the bill is called for, which will be always at six o'clock; any member not attending, to give notice to the landlord of the inn, one week before each meeting, or pay half-a-crown for dinner, which must be provided according to the number expected.

N. B. It is hoped, that the notice required from absenting members will appear necessary, and be chearfully complied with, for the reason before given; but, although the meetings are proposed to be monthly, it is by no means required that any member should attend more frequently than may be perfectly convenient: there will be no expence for non-attendance, and the only trouble to be incurred, will be a note to the landlord of the inn, that Mr. ——— will not be present.

III. That any three or more members assembled as aforesaid, shall have full power to transact any business or affairs relating to this Society.

IV. That all who become members, shall accede to an agreement of the inhabitants of Beckford, Overbury, Kemerton and Bredon, entered into the 18th of September, 1788, in the following terms:

" We the undersigned inhabitants of Beckford, Overbury, Kemerton and Bredon, feeling very sensibly the inconvenience arising from the bad state of the roads in our neighbourhood, and wishing to act cordially and unitedly, in the best manner, for the improvement of the said roads, do declare, that it is our intention from this time, to exert our utmost influence, by advice and example, to put the laws relating therein in strict execution; and for this purpose, we will be ready and willing to serve (at least in our turns), as Surveyors of the Roads in our respective parishes; and we strongly recommend to the parishioners to appoint such persons, as shall be most likely to execute the duties of that office, with regularity, impartiality, and diligence."

Signed, " William Wakeman, John Darke, James Martin, R. Speediman, John Parsons, Henry White, J. Biddle, Roger Parry, William Heckes, William Freeman, Thomas Gibbs, Charles Tidmarsh, John Bricknell, John Alcock, Isaac Nind.

" The above Subscribers give notice to all parishes adjacent, that if the repairs of their respective roads are not more seriously attended to than they have been (the Statute Labour for which, duly performed, will in a great measure be sufficient), they are determined to unite in indicting such defaulters."

That in order to excite the steady attention of the several members of this Society, to the improvement of the roads in their respective parishes, and diffuse a general knowledge of the plan and intent of this institution; these rules and regulations, together with the following advice to Surveyors, shall be printed on a large paper, in the most legible manner, and framed and fixed up in the hall or most frequented room, in the dwelling-house of each of the said members, as well as on the church doors, in the markets, and other places of public resort, in their neighbourhood.

ADVICE TO SURVEYORS OF THE HIGHWAYS, AND ALL PERSONS EMPL(IN FORMING OR REPAIRING THEM.

The public roads and highways in many parts of the counties of Gloucester and Worcester, having by l gleet, become founderous and unsafe for travelling, an Association for enforcing the due execution of tl Laws, has been entered into by gentlemen residing in the neighbourhood of Bredon-Hill; who wish to d serious attention of Surveyors of the Highways, to an object of such importance, and animate them to a and faithful discharge of their duty; and to such of them as are not well skilled in the most essential part office, the following easy directions are recommended (adapted to almost any soil or situation).

TO MAKE A GOOD DURABLE ROAD.

The intended road being laid out, the surface of the natural soil should not be reduced to a dead level, rounded from the trenches that are made to carry off the water; it should then be laid with small brushwoo as is cut from the hedges), the twigs lying crosswise the road, or with furze, or both mixed, and upon stones, placing the largest at the bottom, and decreasing in size to the gravel, or whatever small mater have for the last finish to the covering.

N. B. No stone should be used for making or repairing the roads, but such as has been exposed to the twelve months at least; as when first taken out of the quarry, it is soft and mouldering.

*** Small stones, which lie in great quantities on some parts of Bredon and other hills, are excellent m and might be collected and laid in heaps at a reasonable expence, for the use of the highways.

It is also most earnestly recommended to the consideration of such Surveyors, that no road can be well p to receive the materials, nor preserved in a good state afterwards, unless the hedges and ditches by the sides are properly cut and opened, at the usual seasons directed by Act of Parliament for that purpose; and con drains laid in proper situations, for diverting any stream or watercourse that might be injurious thereto; that unless a sufficient foundation of furze and green brushwood, as abovementioned, be laid under the ston vel or other materials, the expence and labour will in a great measure be thrown away, and in no degree the intended purpose of public utility and advantage.

Every person (of any observation) must be sensible that the beauty of the country is very considerably by the lopping and pollarding of trees, growing by the sides of highways; and it has been found by exp that the object of preserving the roads by such practice, is not obtained; the obstruction of the sun and wi ing chiefly, if not altogether, from the hedges being uncut, and often placed upon high banks, which preve heat and air from having that good effect which would naturally proceed from them without these hinde on the contrary, trees do actually defend the highways from rain in summer; and in winter they can be of no prejudice, being deprived of their leaves during the whole of that season: these considerations are al earnestly recommended to the attention of all concerned in the making or repairing of roads.

It is very evident, that roads are materially damaged by the over-loading of narrow-wheeled carriages c to law; and the general Turnpike Act expressly declares, "That no waggon, or other four-wheeled c having the fellies of the wheels of less breadth than six inches, shall pass on any turnpike road with more tl horses; nor any cart, or other two-wheeled carriage, having the fellies of the wheels of less breadth t inches, shall pass on any turnpike road with more than three horses; on pain that the owner of every su riage shall forfeit five pounds, and the driver (not being the owner), twenty shillings, to any person wl sue for the same." But however punctually the laws relating to the highways may be observed and enfo may be further remarked, that a constant and unremitting attention is requisite, for the due ordering and vation of the roads; and, that all Surveyors should be careful to cause all obstructions and nuisances to moved, the ruts and quarters filled and levelled, and occasional supplies of stone and gravel laid thereon, manner as to render the surface of the roads smooth, regular and easy, (the neglect of which has been fou tremely prejudicial and inconvenient): it might therefore be very proper, that each parish should leave a su number of labourers for that particular work; and that each of those labourers should be appointed to take c certain portion or extent of road, and to keep the part allotted to him in perfect order: such managemen effectually preserve the roads, and prevent the necessity of more expensive repairs, which must otherwise quently wanting.

If the method prescribed by the general Road Act, of the 13 Geo. 3. for the stating and settling of Su accounts, was more strictly observed, instead of the manner too generally adopted, of passing those ac without any previous examination, at the special sessions held annually for the highways, when (by reaso short time allotted for the business of that meeting) it is impossible for the magistrates to enter into a th investigation of such accounts; it might have a very serviceable effect upon the conduct of Surveyors, b pelling them to a more punctual and regular performance of so necessary a part of their duty: it is therefo wished, that the magistrates who attend at such special sessions, would resolve in future, that all Surveyo render a full and particular account, as well of all work and duty performed by teams and labourers; as al assessments, compositions, and sums of money by them received and expended, for the amendment and pres

of the highways within their respective parishes; and that no such accounts be passed at such special sessions, unless it shall appear to have been previously produced at a public meeting of the inhabitants (testified by the signature of at least two of them), and afterwards examined and allowed by a proper magistrate, according to the directions of the beforementioned Act of Parliament; and, in order that all the Surveyors may have due notice of such resolutions, it is proposed, that the same be inserted in the instructions subjoined to their warrants of appointment. It may be reasonably presumed, that the Legislature intended the Surveyors' accounts should be examined by the nearest magistrate, who, from his own observation, or from local evidence, might be able to judge in what manner the duty had been performed.

The gentlemen of the Association wish to have it thoroughly understood, that as they are absolutely determined to exert their utmost power and influence, in putting the laws respecting the highways into execution, and enforcing the same; so they will be willing, ready, and happy, to give every friendly assistance and encouragement, to such as shall conform to their duty in this matter, which is so essential to the comfort and advantage of the neighbourhood.

It is much to be desired that no person will become Members of this Society, who are not really and earnestly disposed to act up to the spirit of its institution, and to embrace every opportunity of promoting its object, which is the improvement of the roads in their respective parishes particularly, and in the neighbourhood in general: to impress this object more forcibly, the following very pertinent observations are extracted from a charge delivered to the Grand Jury, at a quarter-sessions for the county of Worcester.

"Bad Roads are the only blemish and disgrace of this our country; happy beyond every other in the kingdom, in its situation, soil, variety, and plenty of produce, which extends to every necessary of life: why are we, in respect to our highways, behind-hand with almost all our borderers? let us vindicate ourselves from the reproaches of every traveller; not for his sake alone, but our own; for not to mention the loss that all our trade, commerce, and husbandry sustain from the badness of our roads, it deprives the country of its social pleasures and connexions; you too well know that in the winter, when the chearless season of the year invites, and requires, society and good fellowship, the intercourse of neighbours, few miles distant from each other, cannot be kept up, without imminent danger of their limbs or lives: in general, your Surveyors are negligent of their duties to a shameful degree: they throw the blame on the remissness of the individuals in their district: wherever the fault lies, the fact of inattention is certain; and an evil to which we ought, all of us, endeavour to apply a remedy as far as we are able; by duly enforcing the present laws for the amendment of the highways, until it shall please the wisdom of Parliament to furnish us with better."

THE END.

GENERAL VIEW

OF THE

AGRICULTURE

OF THE COUNTY OF

HERTFORD.

GENERAL VIEW

OF THE

AGRICULTURE

OF THE COUNTY OF

HERTFORD,

WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEM

BY D. WALKER,

NO. 14, UPPER MARYBONE STREET.

Gt Brit

DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE
INTERNAL IMPROVEMENT.

LONDON:

PRINTED BY W. BULMER AND CO.

M.DCC.XCV.

TO THE READER.

IT is requested, that this Paper may be returned to the B of Agriculture, at its office in London, with any additiona marks and observations which may occur on the perusal, *w on the margin*, as soon as may be convenient.

It is hardly necessary to add, that the Board does not sider itself responsible, for any fact or observation cont in this Report, which at present is printed and circul for the purpose merely of procuring farther informatio specting the husbandry of this district, and of enabling e one, to contribute his mite, to the improvement of the cou

The Board has adopted the same plan, in regard to al other counties in the united kingdom; and will be hap give every assistance in its power, to any person who ma desirous of improving his breed of cattle, sheep, &c. or of tr any useful experiment in husbandry.

London, January, 1795.

COUNTY OF HERTFORD.

SITUATION.

HERTFORDSHIRE, or Hartfordshire, is an inland county, bounded by Bedfordshire and Cambridgeshire towards the north and west, Buckinghamshire towards the west, Essex towards the east, and Middlesex towards the south; and situated between the parallels of 51 degrees 37 minutes and 52 degrees 5 minutes north latitude. According to Halley, it contains 451,000 acres.

Rivers and Streams.——The principal rivers are the Lea and the Colne; and these are composed of many inferior streams, most of whose sources lie within the county, and join the principal rivers at different distances from their source. The Lea rises near Leagrave in Bedfordshire, enters Hertfordshire near Bower Heath, and traverses the county in a direction nearly from north-west to south-east, to its conflux with the Stort, about a mile east of Haddesden; then runs nearly south, and continues with that river, for the most part, the boundary of the county towards the east. The Maran, or Mimerum, rises near Frogmore in Hitchin hundred; and with the Beane, which rises near Cromer in Odsey hundred, joins the Lea near Hertford. The sources of the Rib are near Buntingford in Edwintree hundred: is increased in its course by the waters of the Quin, which rises near Biggin in the same hundred, and joins the Lea between Hertford and Ware. From these rivers united, the inhabitants of the metropolis derive a leading comfort of life, conveyed to them by the New River. The source of the Ash is also in Edwintree hundred: it rises near Upperwick, and falls into the Lea about a mile below Ware. The Stort rises in Essex; is navigable from Bishops Storford to its junction with the Lea, which

is also navigable from Hertford to the Thames. Several other small streams, whose sources are also in Hertfordshire, fall into the Stort, which is principally the eastern boundary of the county towards Essex, from near Bishops Storford, to its junction with the Lea. The Verulam, Verlam, or Muse river, rises in Dacorum hundred, near Marget-street, and the confines of Bedfordshire, runs nearly south south-east to St. Albans, and by the quondam walls of the Roman Verulam; from thence nearly south, watering some meadows in its course, till it loses its name and consequence near Colney-street, in the river Colne, which is there a small stream, and rises near Kix, or Kits-End, in Middlesex, taking nearly a northern course to North Mims, then north-west to Coney Heath, and from thence nearly south-west to its conflux with the Muse, being joined near the conflux by a small stream which rises near Elstree. The classic Verulam, now under this adjective name (Colne) runs nearly south-west to Watford, then west by south to, and about a mile and half beyond Rickmansworth; and from thence nearly south, till it leaves the county. The Gade, which rises also in Dacorum hundred, near Gaddesden, and the confines of Buckinghamshire, joins near Corner Hall the Bulburn river, which rises near Penley Hall in the same hundred; takes from the junction nearly a south by east direction, runs through Lord Clarendon's and Lord Essex's parks at Kings Langley and Cashiobury, and then nearly south-west to its conflux with the Chesham river near Rickmansworth, and junction with the Colne.

These are the principal streams which intersect and water the County of Hertford in all directions; and as they would unquestionably be of the utmost consequence (if not shackled by mill owners) in watering the adjoining meadows and low grounds, in a county which produces so little natural grass, I considered it my duty thus far to describe them; and shall, in its proper place, point out the advantages derivable therefrom. The nine sister springs of the celebrated Cam at Ashwell, the source of the Hiz near Hitchin, and the sources of other rivers, are in this county.

Canals.——The grand junction canal, from Branston wharf on

the Coventry canal to Old Brentford, where it joins the Thames, enters the county of Hertford above Berkhamsted, and follows the course of the Bulburn and Gade to Rickmansworth; and from thence the course of the Colne, till it leaves the county: and a navigation has been in contemplation from St. Albans, by the Muse and Colne, to join the grand junction canal below Cashiobury park. Great agricultural and commercial advantages will be derived from these navigable canals, and principally from the first, to this and the other counties through which it passes; and I understand that calculations have already been formed, by which it appears that coals from the great Staffordshire and Warwickshire collieries will be delivered at Crossley hill (the nearest distance from London which the jealousy of a certain corporation will permit them to be brought), at a much cheaper rate than they can be purchased in the port of London.

The proprietors of the navigation proposed to tunnel under Crossley hill, but I now understand the Earl of Essex, actuated by motives of patriotism becoming his high rank, and consonant with his philanthropy, has agreed that the navigation shall pass through his park:—great expence in tunneling will be saved to the proprietors, and of course in freight to the public thereby. By this navigation coals will be brought through Warwickshire, Northamptonshire, and Bedfordshire, into Hertfordshire, as far as the above restriction will permit, at such reasonable prices as will enable farmers to burn lime therewith, for the purposes of agriculture with some prospect of success, and compensation from the crops produced thereby. It is therefore the business of this Honourable Board to investigate the ground of restriction, and remove the same if found injurious to the interests of agriculture.

General Description.——Hertfordshire is deemed the first corn county in the kingdom; and very properly so, for with the requisite advantages of climate, and of the various manures brought from London, to aid the production of the most valuable crops, nearly the whole of the soil is properly tillage land. The uneven surface of the county, varied through its whole extent with hill

and dale, affords natural drainage, and all the various aspects under heaven.

Soil.——The prevailing soil is a strong, red, shelvy clay, intimately mixed with flints covering chalk, generally of an excellent quality, which lies at different depths from the surface, and points out to the husbandman a never-failing and unrivalled source of improvement. This soil, and this substratum, the mode of tillage, and the implements used in the culture thereof, will be strongly marked in the subsequent Report.

The remaining soils consist of the various gradations of loam from the strongest to the weakest kind, more or less intermixed with gravel, principally of the flinty sort, and with chalk, which (though there are exceptions to this general rule), may be said every where to obtain, and no where to predominate: a small portion of moor, or peat earth, in the beds of some of the rivers and low meadows adjoining thereto, the quantity and depth of which has not yet been ascertained, nor, as far as I have been able to learn, converted in any one instance to the valuable purposes for which it is adapted: and a soil widely differing from all the rest, very fortunately of no great extent, and confined to one corner of the county, consisting of a hungry clay or loam, full of small blue pebbles, and only fit for the growth of underwood.

These soils (the two last excepted) have been indiscriminately scattered by the hand of sportive nature all over the face of the county; and frequently, very frequently, they may all be found in the small compass of a field of four or five acres. Uniformity of soil is scarce any where to be met with, except in the low flat lands by the rivers sides, and in dells, the staple thereon, frequently to a great depth, having been washed down from the uplands by the heavy rains from time to time for ages past, and there deposited when the vehicle which had conveyed it thither had evaporated.—The made soils in the neighbourhood of market-towns and villages are out of the question.

Strata.——Having thus attempted to give the only general description of the infinitely varied and mixed soils of Hertfordshire which the nature of the case will admit, the now prevailing prac-

ice of sinking pits, for the purpose of chalking the surrounding land therefrom, enables me to give a tolerable idea of a section of the soil, to the depth of 40 or 50 feet. In general, the basis of such section will be found to consist of a deep bed of chalk; the superstructure, an irregular indenture of chalk and earth-pillars; the earth-pillars broadest at top, and narrowing as they descend; the chalk-pillars broadest at the bottom, rising conically, and narrowing as they ascend to the surface:—the chalk-pillars, frequently ascend to the surface, make part of the staple, and the whole extent of the apex is visible in ploughed lands. The earth-pillars have been found to descend 50 feet and upwards, to the no small mortification of the chalk-pit diggers, who are frequently obliged to abandon a pit which they have sunk in an earth pillar, to the depth of 20 feet and upwards, and sink in a fresh spot with better hopes of success.

This general rule admits, however, of many exceptions; the chalk, in several parts of the county, is covered for many acres together with a great depth of earth, which often renders the question of a chalk basis uncertain; and the downs skirting the county towards Cambridgeshire, are for the most part a continued bed of hurlock, or bastard chalk, covered with a very thin staple, producing sweet but scanty herbage for sheep, and incapable of any further improvement.

Soils so widely differing in depth, strength, and quality, in the same farm, and often in the same field, will necessarily require farming implements, particularly ploughs, differing in their strength of construction, though made on the same principle. For this reason I annex drawings of the Hertfordshire plough, and endeavour to show how finely this very simple implement will pulverize, when guided by the best ploughmen in the kingdom; and I wish much I could show, with equal success, the operations of the expert Hertfordshire seedsmen.

Extent.——This county is said to contain 451,000 statute acres. On what data this calculation has been formed I know not; but I much doubt whether any survey has been hitherto made thereof sufficiently accurate to be relied on. A better survey, and

on a larger scale than any yet made, is an object highly meriting the attention of the gentlemen of the county. But this cannot be accomplished, or even undertaken by a surveyor, without very ample and certain encouragement; and as I humbly conceive that the great and leading views of the Board of Agriculture are, to improve the husbandry of the lands now inclosed, promote the inclosure and cultivation of the commons and wastes, and increase the number of useful peasantry, I have directed my attention to these objects; being aware, that to ascertain the exact average of waste lands, or number of inhabitants, does not add either to the one or the other; and that a cursory view of commons and waste lands is too vague a foundation to build a tolerably accurate calculation of future produce and value, when inclosed, subdivided, and improved. When the measure is adopted and carried into effect, the end proposed by that measure will in due time be accomplished.

General State.——Hertfordshire contains 120 parishes, 18 market-towns, and many large villages, principally on the great roads which pass through it to distant parts.

Population.——This county is very populous towards the Middlesex and Essex sides. I bestowed some pains and expence to ascertain the population of the county; but as I could not, without more time than was compatible with my other engagements, distinguish between the constant inhabitants and those whose residence was temporary, and who removed their families to London in the winter, I therefore abandoned a calculation on which I could not rely. The florid countenances of the living, and the churchyard records of the dead, are happy and incontrovertible proofs of the salubrity of the Hertfordshire air.

Mode of Occupation.——The general description of the soil of Hertfordshire leads to the manner in which it is necessarily occupied. By far the greatest part being adapted to tillage, and not meadow or pasture, it is so occupied, except what is reserved for pleasure in the parks of gentlemen, and that part also would be more usefully employed in tillage.

A farm, should be of a sufficient size or greatness to afford

constant employ to a team of adequate strength to plough the lands therein. There are many farms, particularly towards London, below this standard; and in general they do not exceed £100, or £120 per annum.—There are a few farms from £400 to £600 and upwards per annum.

What I understand by the word pasture, when applied to land in general, is that sort of land which, in contradistinction to tillage land, has long produced, or if converted to pasture will continue to produce, a sufficient quantity of good natural grass for pasture or hay. The cultivated grasses I understand to be clover, cinquefoil, trefoil, lucern, &c.

The pastures and meadows of Hertfordshire are principally the hedge greens surrounding the arable fields; these are of different widths, from 15 to 20 feet, and upwards: the grass thereon is in general mowed and made into hay; and when the fields to which they belong are fallow, or after harvest, are depastured by the cattle and sheep, and manured by their dung, when they resort to the hedge greens for pasture, or the adjoining hedges for shade or shelter.

Live Stock.——The stock of this county are horses for the plough, milch cows, and sheep, principally ewes. Working bullocks are kept by some gentlemen; very few of these are bred in the county; nor are their breeds further attended to than as they are found to answer the purposes of those who purchase and keep them. A few cart horses are bred in the more distant parts of the county, from mares of the same description, and where a stallion of the draught kind is in more repute than *Eclipse*. The black cattle are the produce of the breeding parts of the united kingdom, Alderney, &c.; the working bullocks are principally bred and broke in Sussex; the sheep are in general from Wiltshire, and the west country: the Welch sheep are purchased for, and kept in parks only. The Hertfordshire farmers derive from the plough the surest and most ample source of advantage and compensation for their industry, experience, and capitals employed in husbandry; their live stock must therefore be bred, and that breed improved, before it comes to their hands. I am of opinion that the

finer breed of milch cows and sheep will not answer their purpose, as their feedings will not suit either.

Swine are a profitable stock in Hertfordshire, and attention is paid to the breed in some parts thereof. Working bullocks, or speyed heifers (for both are wrought), are certainly best calculated for a heavy country and soft roads: I have no wish to enter the lists against those who are bullock advocates, and shall content myself with describing Mr. Casmajor's manner of choosing, feeding, shoeing, &c. of oxen or working bullocks, in my answer to question 11th.

Of Water Meadows in general.——Where situations and circumstances suit, the *ne plus ultra* of rural economy is obtained by water meadows; the poorest lands yield an abundant crop by watering only, and the annual return of that crop is thereby insured, while water runs and grass grows.

In Dorsetshire, Somersetshire, Hampshire, and Berkshire, watering of meadows has been long practised. There water meadows are frequently made on the great scale, and the process is attended with considerable expence in the outset, therefore the practice should be well understood before it is even attempted to be carried into execution. The theory and practice are as follows:

Suppose a tract of nearly level land, containing 100 acres, or upwards, declining gently to, and bounded on the lower side by a river, the surface of which is considerably below the level of any part of the land; the owner of this land has a right to pen up the river at any part of its course above the land, where he pleases, to cut an aqueduct from the pen or dam in the river to the land, and to turn thereby all or any part of the water in the river on the land when he thinks proper, or at certain stipulated times.

These preliminaries are absolutely necessary to guard the owner from future interruptions, as the conversion of land into water meadow may be attended with more expence than the land is worth, prior to the conversion.

To ascertain with precision the line and expence of the aqueduct, a level is taken with great care from the upper end and

highest side of the land to be watered, and the line thereof marked at short intervals with stakes, till it cuts the river above where the dam is made, if a more eligible place does not offer a short way higher in the river. The level is then continued, and the line thereof marked in the same manner along the upper side of the land to be watered, as far as is expedient, the stakes show the whole course of the aqueduct before it is cut, and the length thereof, the leading datum for calculation is thereby easily measured and ascertained.

If the line of the aqueduct is to be cut through solid holding earth, and no terracing to be made, or rocks to remove or be cut through, and no dells or highways to cross, either over or under bridges, the expence will then be proportioned to its length only, and the extra expences may be added thereto, when they cannot be avoided. The next datum for calculation is the width and necessary height of the dam or pen in the river; and as the construction thereof may be attended with considerable expence, for which and the other incident expences the water meadows may never compensate, particularly if they are subject to tithes in kind, it may now be easily determined whether there is a proper situation adjoining to any part of the level, and a sufficient fall therefrom for a water corn mill, or any other mill which the manufactures of the neighbourhood may employ, if so, the object is greatly enlarged and may warrant the expence.

I am aware that mills in the hands of gentlemen are not a very eligible estate; but the expence being lessened by the aqueduct, the situation may be let for a long term of years, greatly to the advantage of the owner, who may stipulate with the lessee for the use of the water, when wanted to flood the meadows.

When rivers are flooded early in the spring, and the soil and compost washed down from arable uplands by the floods, the water is thickened, and when spread on level water meadows, deposits the sediment, the soil is enriched, and the quantity and quality of the grass improved thereby. It may therefore be necessary to make a tumbling bay, or low shot to discharge the extra water of the floods from the aqueduct, and prevent the

banks thereof from being overflowed and carried away in time of floods. Along that part of the aqueduct which adjoins the water meadows several sluice frames are fixed, at equal distances, to flood one part of the meadows at a time; the apertures of the frames are made alike, and equal to the column of water in the aqueduct, and the cells thereof laid flush with its bottom. Two sluices fitted to the frames are sufficient, as they may be carried down the aqueduct from frame to frame in the process of flooding. If the meadows, or any part of them, are of a considerable width from the aqueduct to the adjoining river, smaller aqueducts nearly parallel to the first, and as the slope of the ground may require, are made to receive the water when it has passed over the meadows above, and again to discharge it on the meadows below, if necessary, and a bank is generally made along the lower side of the water meadows, at a small distance from the river, to keep the water on the meadows when flooded, and to keep out the water of the river, when it overflows at improper times; this bank, to save expence, may be thrown up by the plough.

The process of flooding is as follows: the water is turned into the aqueduct, and a sluice put into the first sluice frame, small apertures or gaps are made along the lower bank of the aqueduct, from the entrance thereof into the meadows to the first sluice frame, and the water issuing therefrom guided by small aqueducts, or plough furrows, to the higher or ridge parts of the declining meadow, so as to water the whole as equally as possible. When that part of the meadow is considered to be sufficiently watered, a sluice is put into the second sluice frame, apertures cut in the lower bank, between the first and second sluice frame, the apertures therein above the first sluice frame filled up, and the first sluice removed. Thus the work proceeds, till the whole flooding is finished, and I am of opinion that if times and circumstances suit, the meadows may have a second or third drench, so that the water may not continue too long on one and the same part, to chill in early spring the roots of the herbage; the practice will also be thereby rendered more analogous to the sooner

and latter rains, and the other bountiful dispensations of Providence.

This is so far the theory and practice of flooding meadows with water, in situations such as I have described, and such as will be found in nature to offer most commonly for flooding large tracts of meadows (see the annexed Plans of water meadows).

Where the meadows are level, or very nearly so, they are banked round, and the water conveyed to them only: the meadows along small streams, in narrow level valleys, such as frequently occur in Hertfordshire, are watered by making a pond-head, where it can be done at little expence, across the valley, with a sluice in the middle, and bed of the stream sufficiently wide to let the water pass in floods, the course of the stream is straitened and widened to a sufficient distance above and below the situation of the intended dam or bank, which is made with the earth dug therefrom, and from a parallel ditch made a few yards below, to supply what earth may be wanted. The upper side of the dam is sloped in proportion to its height, and covered with the turf from the site of the dam, top of the ditch, &c.; this strengthens the dam and saves the expence of a clay wall. The faces and returning wings of the sluice in the middle of the pond-head are generally built with stone or brick, and may be arched over, if the top of the dam is made sufficiently wide for a road. Aqueducts are carried from the corners of the dam along the higher sides of the meadows below; and when the sluice is put down, the water rises to its level on the meadow above the dam, and runs into the aqueducts; the process of flooding therefrom is as above described. The proper situation, height of the dam, the expence attending the construction thereof, and the number of acres that will be flooded thereby, and by the aqueducts from the corners thereof, are also ascertained by levels taken before the work commences: about 12 acres so situated have been lately flooded by a similar dam or sluice at the Grove Farm, near East Grinstead in Sussex, by Mr. Brooks, the then spirited improver and owner of that estate, and he was led thereto by the remains of an iron forge or bloomery dam, which were formerly common in that

county. I saw the meadow about a month after it had been flooded, and the planks of the wooden bridges across the brook were crusted over as thick as a half-crown piece with the sediment of the muddy water from the arable lands above; which circumstance led me to conclude that there could be no question of the success of Mr. Brooks's method of flooding; I therefore recommend it in similar situations in Hertfordshire, where the numerous small clear streams thus intercepted in their course, when reddened with the floods from the arable well manured uplands, would deposit the sediment upon, and enrich the meadows so watered.

Navigable canals passing through a level country frequently afford the means of watering considerable tracts of land therefrom at an easy expence, and with little or no injury to the navigation; many acres of meadow ground in the parish of Chertsey, near Weybridge in Surry, and lying between the navigable canal and the old river Wye, are flooded from wooden trunks laid in the bank of the canal, and opened or stopped up at pleasure. I am induced to mention this circumstance that the proprietors of estates adjoining the navigable canals intended to be made in and through Hertfordshire, may take the hint, and stipulate in time with the proprietors thereof, for a supply of water in the flooding seasons.

There is unquestionably great difference in the quality of the water of different rivers and brooks, the clearest water, and water impregnated with metals or semi-metals, are supposed to be the worst; and the water of rivers which pass through manufacturing towns, and are thickened with the soap and lye used in fulling-mills, bleaching grounds, &c. the best. The numerous bleaching grounds along the course of the Stour near its source, and in the parish of Silton in Dorsetshire, afford a very striking instance of the effects of water impregnated with lye made from wood ashes, and a collateral proof that all ashes should be kept dry till they are laid on land as a manure. The yarn or cloth to be bleached is steeped in the lye, and then spread on a part of the bleaching ground previously close mowed to receive it; water is frequently

thrown with scoops from the adjoining aqueducts upon the yarn or cloth during the process, and the lye washed therefrom into the ground; the vegetation is thereby quickened to a degree beyond the limits of credibility, and the grass is cut in succession all over the bleaching ground, when fresh yarn or cloth is laid down to bleach; and the grass cut therefrom daily, is carried and thrown into cribs adjoining the bleaching ground, and eaten with great avidity by all sorts of cattle; the number of milch cows fed principally by the grass thus cut in succession from a bleaching ground, containing four or five acres, is also incredible, and they thrive better on this grass than on any other provender. The ashes, after the lye has been extracted, are first rate manure for cold meadow or pasture land; and the lye, after it has answered the purposes of the bleacher, is carried from the lye vats in water carts, and spread therefrom on meadow land. The aqueducts in the bleaching grounds are supplied from the river Stour, which is there a small mill stream, and being thus saturated with lye from wood ashes, is carried upon and waters a considerable tract of meadows in the parish immediately below Silton. In 1790, I valued a large and fine estate in the parish of Silton and neighbourhood, and have no doubt it has been since considerably improved by the above means. While I was there, I was credibly informed that the water meadows in the neighbouring parish were then rented at three guineas per acre, and that the owner had given the tenant notice to quit, because he did not choose to advance the rent.

The effects of watering in tropical climates are astonishingly profitable, aqueducts are made at a great expence in the islands of Jamaica and St. Domingo, to water the cane lands in the sugar plantations; by this means a crop is insured when the periodical rains fail: if the relations of travellers in China may be relied on, the art of watering lands in this country will appear to be in its infancy; it is said that water is forced up there by engines to the highest hills, and that the whole empire is watered.

Though I am by no means sanguine in recommending the Chinese practice *in toto*, I am notwithstanding of opinion, that in many cases and situations engines may be employed with advan-

tage: the water-wheel of a Dutch windmill throws a considerable stream of water into a canal or dyke, the surface of which is some yards above the level of the country, and of the water thrown thereinto.—We have only to fancy the Dutch canal is an English meadow-watering aqueduct, and the idea is complete.

Water may be thrown 10 or 15 feet higher than the surface of a river, by the simplest of all possible engines, and drove by the same stream from which it raises the water. Suppose a mill-race with five feet fall only, and of sufficient width to pass nearly the whole of a stream of adequate power; two common water-wheels on the same axis, and about four feet asunder, constitute the whole of the moving part of the engine. The diameter of the larger wheel 32 feet, and width proportioned to the power required; the diameter of the smaller wheel 22 feet, with bucket, or close cogs, and about half the width or less of the larger wheel. The axis is so laid upon its gudgeons, that the larger wheel applies to the mill-race, and the smaller wheel dips about a foot into an aqueduct brought from and on the level of the dam; and applies as close as possible, to avoid friction, to a race built with stone as high as the level of the axis, on the reverse side to the mill-race. When the machine is in motion, the smaller wheel throws up a stream of water to the top of its adjoining race, and 10 feet above the surface of the dam. This stream may be conveyed from thence in an aqueduct to water land.

Great pains and expence have been bestowed to give even a temporary verdure to several of the largest Hertfordshire parks. Part of Cashiobury park was dressed in the year 1790 with the following compost: about 15,000 cubic yards of pond mud was mixed, when wet, with good unslacked chalk lime, one load, or 40 bushels of lime to about 20 loads of mud, and laid on the poorest soil in the park, the staple of which is about four inches on chalk. The natural clover sprung up soon afterwards in great abundance; and in 1793, the land so manured was (to use the bailiff's words) a perfect honeysuckle, and eagerly fed off by the cattle depastured thereon. A piece of land by the pond side was manured with the mud only, and planted with cabbages, which

are said to have grown to an extraordinary size and quality. But the droughts of the summer 1794 had completely burnt up the honeysuckle; and about the middle of August in that year, Cashiobury and the other Hertfordshire parks were as gray as badgers.

The polite attention of the noble owner of Cashiobury park merits my warmest acknowledgments, and every attention I can pay to him and his interests in return; and as I understand the great junction canal will pass through his park, I trust the proprietors thereof will readily accord with the patriotic views of this Honourable Board, in forwarding by every means in their power the watering of meadows along the line thereof.

The water of the Gade is thrown up by an engine, drove by a powerful stream, to a reservoir above Cashiobury house. This water may be thrown higher, and in greater abundance, by the same means, and with very little additional expence, upon the extensive level ground on that side of the park next the principal entrance from London, and the Watford and Rickmansworth road; the water may be guided to every part of it in plough furrows, from a reservoir made next the London road and highest part on this side of the park: the carpet would be refreshed, the beauty of the place and value of the feed increased thereby, in the course of a month's watering in the spring; and to prevent the rot, the deer may be confined to another quarter of this extensive park, till a month after this part has been flooded. Here I must remark how finely the drip of a farm yard, when turned on an adjoining meadow, will improve the verdure and crop thereon, however averse a farmer who knows his business may be to suffer the strength of his dung to pass this way; and furnishes a hint to improve the water, by throwing spit-dung, which may be procured from the inns at Watford, or from London, into the reservoir made for the purpose of flooding therefrom. Mr. Benfield's residence at Woodhall park has been too short to make much improvement on the carpet thereon; he has however dressed part of it with unslacked lime, about the 24th of April, 1794, and soon after it was laid on, appearances were in favour of the

practice, though there had been no rains to wash it into the soil. He was then cleaning a large sheet of water; and the great quantity of mud taken therefrom would, if laid on either with or without chalk or lime, freshen and thicken the thin staple on chalk in part of the park. I saw here very good marle dug from the foundation of an enlargement then making to Woodhall. When immersed in vinegar, the fermentation was quick and strong. Nearly half this marle is calcareous (chalk rubbish), and would no doubt be capital manure to light lands, in countries where good chalk is not so plenty as in Hertfordshire: as the calcareous and vitrescent parts of this marle are well mixed, there is little doubt but it would be good dressing for the thin stapled parts of the park, provided a marle pit could be found not *quite* so near the mansion-house. The Beane, or Benefitian river, runs through Woodhall park, is there a considerable stream, and drives an engine which raises water to a reservoir in the highest part of the park; and which may be easily carried from thence in plough furrows, to water any part of the surrounding park. Part of Woodhall park, and an extensive tract of meadow ground below, adjoining the river, may be watered by an aqueduct taken from the pond-head above the stone bridge, and carried on a level along the declivity on the west side of the river.

It has been the practice to chalk meadows and pasture grounds in different counties where chalk is plenty, with very different success; and I apprehend that difference arose principally from the quality of the chalk used. As a proof of this, the low meadows on the Thames and Mole owe their fertility to their having been chalked for ages past, when overflowed by these rivers when swelled by heavy rains, and *encreamed* with the finest chalk in Surry and Berkshire. This sediment has been so often deposited on Chertsey mead, that it has now grown to a stratum of several feet in thickness, and the light gravelly adjoining uplands are marled therefrom: I mention this circumstance as an encouragement to promote

Hertfordshire Water Meadows.——In a county which stands in need of every aid, from its numerous streams, to increase the

quantity of meadow hay and latter grass for cattle and sheep, and the dung made by them for the purposes of husbandry.

There are water meadows, properly so called, on the Muse, immediately below St. Albans, and on the Colne, in the neighbourhood of Rickmansworth. The soil of the Muse water meadows is a very thin staple, on a burning gravel, affording the happiest proof of the great benefit resulting from water when so applied. —A fine crop is here produced in the driest seasons from a soil which, without this aid, would produce little or no crop in any; and when the crop of hay is taken off, the water, if turned on for a short time, will insure a luxuriant crop of latter grass. The soil of the water meadows near Rickmansworth differs much; but a considerable part is moor or peat earth, of different depths, on a hungry blue clay.

The watering these latter meadows near Rickmansworth has been considered of such consequence by the owners and occupiers thereof, that they were long the subject of expensive lawsuits with an opulent miller at Badgworth, who deeming himself, and those under whom he claimed, kings of the waters, broke down the dams, sluices, &c. erected for the purpose of flooding, both above and below his mill; and when the question of right was first tried, he was even so lucky as to get a verdict in his favour; but about the year 1790, a jury was found who differed widely in opinion with their predecessors in office; and his majesty of Badgworth mill has since suffered his neighbours to flood their meadows without interruption.

The many streams intersecting this county in every direction, and mentioned in the general description thereof, may undoubtedly be applied to great advantage in watering the meadows and low grounds contiguous thereto, if directed with judgment; but while the question of the rights of mill owners thereon remains in its present undetermined state, few occupiers of such lands, if they had every other encouragement, will be found hardy enough to risk the expence and uncertainty of lawsuits.

The month of March is in general the earliest flooding time; and in that and the succeeding month of April the water, in times

of great floods occasioned by heavy rains, is generally the best, and thickened with the compost washed down from the ploughed uplands. The water meadows are again flooded, if necessary, after the hay is taken off.

Grains cultivated.——Nearly the whole of the county being, as already mentioned, properly tillage land, the grains principally cultivated are wheat, barley, and oats; and I must here remark, that there is scarce a farm of any extent in the county which does not contain land peculiarly suited to each species.

Rotation of Crops.——The rotation of crops in the county of Hertford, in common with those in all other counties in the kingdom, differ widely; for instance, it is a common practice in some parts of the county of Hertford, to take after turnips two succeeding crops of barley; the first without, and the second with seeds: this is neither good husbandry, nor practised by those who have a permanent interest in the soil; and who of course will farm better. It is therefore material to point out the leading motives which actuate the occupiers of land to this difference; and when the evil is known, it will lead to a remedy which will apply wherever the evil is found to exist.

An occupier of inclosed land on lease for a term of 21 years, will begin by improving his land, and pursue a course of husbandry calculated to keep it in a proper state of manurage, till within two or three years of the expiration of his term, because it is his interest so to do; and for the same reason he pursues a very different conduct towards the end of his lease; he then takes such crops as will turn most to his advantage; and the mischief done to the land he occupies, by cross or over-cropping, he puts entirely out of the question, if he has no prospect of a renewal of his lease or a continuance on his farm at the end thereof.

The improvements of a tenant at will, on such land, are very feeble, and calculated to repay the improver in a short space of time, none of his manures or improvements are of the lasting sort, and he may truly be said to farm from hand to mouth.

An occupier of common field land, let his tenure be what it

will, has too narrow a field for improvement, or extended rotation of crops, therefore little can be expected from him.

And in all cases a rigorous exaction of tithes is sure to damp the ardour of improvement; for I consider the improvement of land, and a rotation of crops, properly so called, to be synonymous terms; land may have too little of the dunghill, or too much.

When the farmers or occupiers of lands at large, in a county or district, have the reputation of farming well, it is to be understood that they avail themselves of all the advantages of their situation, be it what it will. The situation, valuable *substratum*, vicinity to the metropolis, and industry of the inhabitants, are the great sources of the fertility of the county of Herts; and it is to be presumed, that where nine tenths at least of lands so circumstanced are properly tillage lands, and have been constantly under the plough time out of mind, farming, comparatively speaking, will be well understood; and that in soils naturally very indifferent, a great length of experience has pointed out the necessity of *new* intervening meliorating crops, to keep or throw those thentofore used at greater distances in point of time from each other. I shall be perfectly understood when I say, the Hertfordshire farmers have found by experience that the succession of clover, their best and most valuable meliorating green crop, has hitherto been too quick on one and the same field, where the rotation has been as follows, viz. wheat on clover ley; oats, turnips, on a fallow of course; and barley with clover seeds; the clover cut twice, or the second crop fed off.

In every part of a county where the soils so widely differ in one and the same field, and where almost every species of manure is procurable and used, this failure of the clover crops is certainly not imputable either to the soil or the culture. Whether nature requires a longer interval of time to recruit the species of nutrition peculiar to the nourishment of different seeds and plants, or what other cause is to be attributed to this failure of clover crops, which are sown to give an interval of rest between crops of white corn,

are questions, in my apprehension, still involved in uncertainty. I did observe this year (1794) very different crops of clover on nearly the same soils, in different and distant parts of the county of Hertford: in the mixed soils, on the top or apex of a chalk pillar, surrounded by strong, shelvy, clay land, the clover had missed; a whole patch, containing three or four poles of land, was bare, and the surrounding clover tolerably good;—this I imputed to the dryness of the season. In other parts I have seen similar spots carry the best crop of clover; and in general where the clover had missed or failed on most soils, it had missed or failed in patches, and the rest of the crops tolerably good; which induced the growers to let the clovers stand for a crop, and not break them up, and sow another crop; though they were aware that where they had no clover, they would have little or no wheat the succeeding year, as the ground there would be beggared by weeds. I saw a crop of clover, in the parish of Sheephall near Stevenage, on strong clay land, lying to a good aspect and drainage, and ploughed in (three-step) lands about nine feet wide, with deep furrows between them. The plant on the lands was in most places but indifferent, though on a good holding soil; and in the bottom of the furrows it was most luxuriant, and overtopped the rest:—here the plant had certainly most moisture, but it might possibly have got hold of a maiden soil; for this species of clay is good productive soil to the centre, if it holds so far; and when taken from depths of 50 and 60 feet, and exposed a short time to the air, it will produce most luxuriant crops. Mr. Whittington, an excellent and improving farmer, who holds a large farm in this parish, chalked about four years ago (1790) land in the neighbourhood, and of the same sort with the above; and part of it bore a most luxuriant and even crop of clover.

The other meliorating and intervening crops introduced in Hertfordshire, and used by the best farmers, are pulse, buckwheat, cinquefoil, lucern, trefoil, and sometimes ryegrass or bents; and rape seed is frequently sown among turnips, or alone, to be fed off. Buck-wheat, though of late introduction, is becoming more prevalent as an intervening crop; but I apprehend, if used

as a meliorating crop, it should be cut green, and given to working cattle: horses, I understand, thrive upon it. Cinquefoil thrives on the poorest lands; and as it is a ten or twelve years crop, may be considered a substitute for meadow hay; but it will not last so long if sheep are suffered to bite the plant too close. Lucern is a valuable crop, and excellent food for milch cows, or working horses: it requires a strong deep soil; and the Hertfordshire strong shelvy clay, if drained to take off the superabundant moisture, suits it very well. It is generally sown in drills; but the rector of Hatfield has sown it broad cast, with very good success. An acre or two of lucern is a valuable crop near a farm-house; a portion of it may be cut daily during the summer months, and thrown into cribs in a farm-yard, or carried into the racks in the stables, to be eaten by the cattle and horses; and the whole piece of lucern may be cut four times a year at least; but cattle should not be suffered to go upon it.—In very dry seasons, this valuable plant should be watered by hand. Trefoil hay is said to be excellent food for hunters and running horses. Some years ago, a great part of the meadow ground in Lime Grove paddock, near Putney, was manured with the dung from capital livery stables in London; and this year the crop of grass on the land so manured was three-fourths trefoil, the seed of which is supposed to have been brought on in the dung.—This may serve as a very necessary hint to improve the quantity and quality of the grass on the Hertfordshire parks.

Potatoes, in light sandy soils, are a good and profitable intervening crop, and may be continued for two or three years successively. They may be planted on mixens made on the hedge greens, and hoed, which will clear them of weeds, and produce a valuable crop before the mixens are removed to manure the adjoining lands intended for a wheat crop.

Mr. Hill has a field of uniformly light sand loam, on the ridge or highest land in the parish of Kempton, containing about two acres and three-quarters; this field was cropped with potatoes in 1794 when I saw it, and the year before produced about 400 bushels per acre, worth on the average 1 *s.* 9 *d.* per bushel--£35

per acre: every attendant expence about £5;—£30 clear. He fed his milch cows and store pigs with the potatoes in winter: the cows gave abundance of milk, but not cream in proportion.

The manures brought from London to the neighbourhood of Dunstable are soot, ashes, furriers' clippings, horn shavings, and sheep's trotters. On the strong lands, about two bushels and a quarter of wheat, and four bushels of barley or oats, are sown per acre. On light lands, from two and a half to three bushels of wheat, and five ditto of barley or oats per ditto. Rotation of crops.—Fallow, and dress or fold for turnips, which are fed off by the sheep in winter. Barley on one tilth sown about the 12th of March following. Barley and clover about the same time next year. Depasture the clover from harvest to Hollandtide. Sow ashes, and sometimes soot, on the clover at or before Lady-day next; cut the clover twice, and sow wheat in the autumn following on one tilth, and harrow it in; and oats or pease after the wheat. They never sow the same land with pease but once in nine years, and consider an interval of eleven years better. They fallow for turnips after oats, and sow wheat after pease.—If the crop of turnips or pease fails, the rotation is of course broke into. The following rotation is also practised, viz. winter tares, turnips, wheat, barley, and clover; then wheat.

Light lands, or such as in the language of farmers are apt to run foul, are cleaned by fallowing, to get rid of couch or black grass, which is the worst of the two if possible; here the rotation is broke into. The wheat seed season of 1794 has been very unfavourable for strong clay lands, and many acres of such land which have been prepared for wheat must receive a spring crop. The turnip crops have failed the same year almost every where, though sown in the county of Hertford a second, and often a third time, and now sown with wheat or tares for sheep feed; therefore, though the maxim of keeping crops of white corn, which always stand to seed, and of course draw the land most, at as great distances from succeeding each other as possible, by intervening and meliorating crops, and varying these meliorating crops, for the same reason, is admitted to be good and well founded; one and

the same rotation of crops is as little applicable to all soils and all seasons as the drill husbandry.

Crops of pease are considered by the Hertfordshire farmers to require an interval of nine or ten years between the crops on one and the same field. All the pulse crops, particularly pease, have failed in 1794; the best crops I have seen this year were those mixed with beans or rye, what is called in some countries, mash-lane. I am of opinion that beans on such land as suit them, is an excellent meliorating crop, if hoed and kept clean, and if the crop pays the expences only attending the seed and culture thereof, a sufficient profit will accrue from the following crop of wheat; the beans may be planted in rows or drills crossways to the furrows by women and children, and by that means be more easily hoed, and require less seed; sheep may be turned on the land without injury to the crop when about two or three inches above the ground, they will eat the weeds, and not touch the beans. I therefore beg leave to recommend this meliorating crop and the planters thereof to the practice of the Hertfordshire farmers, and protection of this Honourable Board.

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In strong clay lands beans are the meliorating crop, and if hoed twice, the ground may be as well cleaned with this crop as with turnips, and a wheat crop succeed, to be dressed in the spring if necessary; a crop of winter tares for sheep feed may succeed, then wheat again, sown in the autumn following, the ground being previously manured with spit-dung, which lasts longest on, and suits best this sort of land. To vary the meliorating crops, clover may be sown on the wheat crop: the lighter lands are best suited for barley and turnips, and such lands require a greater variation of crops; two crops of white corn should never succeed each other on light lands, if it can possibly be avoided, and as such lands are the theatre on which the expert Hertfordshire farmers exhibit the powers of sheep folding, top dressing, and their whole class of expensive foreign manures, the use and application of such manures must be first accurately described, and substitutes pointed out where they cannot be procured, and a rotation of crops on lands so managed, will naturally follow.

Fallow——While weeds continue to grow and increase in the best cultivated lands, fallowing will be practised in Hertfordshire and elsewhere, where farming is understood, till a substitute less expensive and equally successful in destroying weeds is discovered. Here the fallows generally succeed the crops of oats, and are thus made: the land is ploughed up in the autumn to be mellowed by the winter frosts, and lies in that state till the lent corn is sown in the succeeding spring; it is then ploughed again, and if full of couch and black grass, torn to pieces with harrows, and the couch, &c. collected in heaps and burnt; it then remains untouched till the seeds of the weeds therein, or the greatest part of them have vegetated, and is then ploughed again, and harrowed if necessary, and the season will permit, and the remaining couch collected and burnt. The last ploughing is the most important, and should be made a short time before the crop of wheat is sown, when all the remaining seeds of weeds have vegetated, and before any of them has seeded; the grain then sown and well harrowed in, will have the start of the weeds, thus as much destroyed as possible, and a spring dressing, if necessary, will enable it to keep them effectually under. Fallowing thus made in favourable seasons renders fallowing in future less necessary.

Manures.——The subject becomes *now* interesting to society, and to all mankind—a new field opens for the culture and improvement of lands hitherto held barren to the generality of seasons, and when the practice of the Hertfordshire farmers is perfectly understood, much will remain for speculation, which that practice will excite,

Hertfordshire is justly deemed the first and best corn county in the kingdom, though the soil therein is much inferior in point of natural fertility to many other counties; for notwithstanding its vicinity to the metropolis, its many large and populous market-towns and villages, famed villas, and great and much frequented roads, leading to the distant parts of the kingdom, the average rent of the lands therein does not exceed 12*s.* per acre.

A particular description of the great variety of manures made use of in Hertfordshire, and the different effects of each, would

open a wide, and to more distant farmers, an unimportant field of discussion. I consider it my duty notwithstanding to mention them separately, and endeavour to point out substitutes for such of them as are attended with the happiest effects, and cannot be procured at greater distances from the metropolis. That I may be clearly understood, I shall distinguish the manures by the names, domestic and foreign, and such manures as are sown on the growing crops in the spring, I shall call spring or top dressings.

The domestic manures are such as arise from the soil, or are produced by foreign provender, such as oil-cakes, &c.

Chalk.——This capital manure, for so it truly and incontestibly is, when applied to strong clay and binding land, differs widely in its qualities. The best chalk, when laid upon the land in large pieces and exposed to the frost, soon slackens or pulverizes, particularly if saturated with rain water, when the frost begins to act upon it, the dimensions of the pieces of chalk are much enlarged, and altered to the shape or appearance of the tops of fine large cauliflowers, and when handled fall into impalpable powder; when immersed in vinegar or the vitriolic acid, a strong and quick ebullition ensues; the calcareous and efficient parts of most marles will be found on analyzation to be chalk rubbish, or fossil shells.

The different gradations in the quality of chalk for the purposes of agriculture, from the best sort above described to the hurlock or bastard chalk, may be distinguished by the above criterion. Where chalk can be found at any reasonable depth, say 20 feet under the strong red Herefordshire clay, this single circumstance enhances the value of the soil more than land owners are aware of, and the most experienced Hertfordshire farmers agree, that chalking lands so circumstanced is the best mode of culture they are capable of receiving.

The method pursued in chalking such land is as under, and the persons employed therein follow it as a trade: a spot is fixed upon nearly centrical to about six acres of the land to be chalked, here a pit, about four feet diameter, is sunk to the chalk, if found

within about 20 feet from the surface; if not, the chalkers consider they are on an earth pillar, fill up the pit, and sink in fresh places till their labour is attended with better success. The pit from the surface to the chalk, is kept from falling in by a sort of basket work made with hazle or willow rods and brushwood, cut green and manufactured with the small boughs and leaves remaining thereon, to make the basket work the closer. The earth and chalk is raised from the pit by a jack rowl on a frame, generally of very simple and rude construction: to one end of the rowl is fixed a cart wheel, which answers the double purpose of a fly and a stop; an inch rope of sufficient length is wound round the rowl, to one end of which is affixed a weight which nearly counterbalances the empty bucket fastened to the other end. This apology for an axis in peritrochio, two wheel-barrows, a spade, a shovel, and a pickaxe, are all the necessary implements in trade of a company of chalkers, generally three in number. The pitman digs the chalk and fills the basket, and his companions alternately wind it up, and wheel its contents upon the land; when the basket is wound up to the top of the pit, to stop its descent till emptied, the point of a wooden peg, of sufficient length and strength, is thrust by the perpendicular spoke in the wheel into a hole made in the adjoining upright or standard of the frame, to receive it. The pit is sunk from 20 to 30 feet deep, and then chambered at the bottom, that is, the pitman digs or cuts out the chalk horizontally, in three separate directions; the horizontal apertures being of a sufficient height and width to admit of the pitman's working in them with ease and safety. One pit will chalk six acres, laying on sixty loads on an acre.—If more is laid on, and to the full extent of chalking, viz. 100 loads, then a proportionable less extent of land than six acres is chalked from one pit. Eighteen barrowfulls make a load, and the usual price for chalking is 7*d.* per load, all expences included; therefore the expence of chalking, at 60 loads per acre, is £1. 12*s.* 6*d*; and at 100 ditto £2. 18*s.* 4*d.*; as the chalk is considered to be better the deeper it lies, and the top chalk particularly, if it lies within three or four feet of the surface very indifferent, and only fit for

lime, or to be laid on roads, gateways, &c. the chalkers must be directed to lay by the chalk for the first three or four feet in depth, to be applied to the above purposes, or if not wanted therefore, again thrown into the pit when filled up, and also to pick out the flints from the chalk before it is carried on the land, for if they are not narrowly watched they will chalk with both.

Mr. John Hill of Coddicot, to whom I am much indebted for his good offices, farms upwards of 1200 acres in the adjoining parishes of Coddicot and Kimpton, a considerable part of which is his own estate; he has chalked many acres of land, and approves much of the practice; he chalked a field of strong clay land in the autumn of 1793, laid on 60 loads to an acre, and the chalk where the pits were sunk lay about 10 feet from the surface. I viewed this field the 7th of August, 1794, it had borne a crop of pease since it was chalked, and was then under the plough preparatory for a crop of wheat: the chalk was good, and the land appeared to work well, though the chalk was not then thoroughly incorporated with the soil. Mr. Hill never lays on more than 60 loads of chalk on an acre, this he finds will not only make the land work much better and with less strength of cattle, but also, with a light coat of dung, or spring dressings occasionally laid on to quicken the vegetation, produce abundant crops for 10 years; he then chalks again with equal success. As I may have occasion again to quote Mr. Hill and his mode of farming in the course of this Report, sorry I am that the ignorance of another enables me here to put him and the consequences of his improvements in a strong point of view. The average rent of land in these parishes is about 8*s*. per acre, though that rent is certainly too little; the rector impropriate of part of the land which Mr. Hill occupies, formerly let his tithes on lease, and the composition exacted by the lessee never exceeded 2*s*. and 3*d*. per acre for all the land under the plough; this lease expired in 1793, and the rector employed a surveyor to value the land in his tithing, and to settle the future compositions to be paid to him for seven years. Some land which Mr. Hill had lately purchased, lay in half acres and small pieces intermixed in a common field with the lands of

a farmer, who was as competent to farm as the surveyor to value, and had beggared himself and his farm, though his own property. The surveyor fascinated by the appearance of the crops produced by Mr. Hill's management and spring dressings, valued the tithe thereof at 6*s*. and 4*d*. per acre, and his neighbouring farmer's at 1*s*. and 6*d*. though there is not a shadow of difference in the natural quality of the soils in each; and some of Mr. Hill's lands of the same quality, which he had not then dressed, were valued at 1*s*. and 6*d*. also. The farmers of lands within this tithing have in consequence rejected these strange compositions, and are determined in future to slacken in their improvements thereof, leaving it to the rector to resort to tithes in kind, till experience has taught him to be more reasonable.

Experience also points out the strong red clay as an excellent manure or mixture for burning gravel, light sand, loam, or soils where the chalk predominates, when found contiguous thereto. In sinking for chalk, and particularly for water through this clay soil to depths of 40 and 50 feet and upwards, the heaps raised from the pits, and of course covered with the lowest soil dug therefrom, when exposed to and mellowed by the air for a short time produce most luxuriant sow-thistles, rising like a thick wood, and for some time checking the vegetation of other plants, till the maiden strength of the soil is exhausted; this proves that every inch of the soil is good and fit for vegetation, from the top to the bottom, let it be ever so deep. The light lands contiguous to this soil have been covered therewith in many instances with success, and very different soils in the same field have thereby been rendered more uniform, and mended for ever afterwards. I have heard of one or two instances in the culture of this clay land where the top soil, which had been weakened with a long course of tillage, was thrown down, and a fresh soil thrown on the top of it. This is said to have been effected in the following manner: a plough calculated to make a broad and shallow furrow was followed immediately by another in the furrow of the first, with strength of construction, and a team to draw it, adequate to making a deep furrow, and throwing the under on the top of the upper

soil, and the land immediately afterwards chalked on this tilth. But here I must remark for the information of land owners, that no farmer in his senses will attempt these lasting and expensive improvements without a sufficient length of term both of his land, and composition for tithes, to protect him; and I much fear that the progress of improvement in husbandry of this sort will be very slow, till the improving farmer is enabled to make a sure bargain with both landlord and rector.

Dung.——The next species of manure to be mentioned is that which is made in the farm-yards, from the dung and stale of the cattle kept and foddered therein, and the straw, helm, &c. with which they are fed and littered. That this manure may have every advantage, the yard in which it is made should be formed like the palm of the hand when extended in a horizontal direction, lowest in the middle, the fluid part will thereby remain to assist in rotting the solid part of the manure, and when absorbed thereby, be carried together on the land intended to receive it. The general practice of the Hertfordshire farmers is to throw up the dung, which is, or ought to be, so made into heaps (or clumps as they call them) till it has heated sufficiently in their opinion to kill the seeds of weeds intermixed therewith, then to carry it on the land, and spread and plough it in directly afterwards; for if a shower of rain should intervene between the carrying it on, and spreading, the succeeding crop will be strongest and rankest where the dung heaps lay. The reason assigned for this practice is, that the vegetation produced thereby is much quicker, and attended with less expence than from dung incorporated or mixed with earth in mixens; but the best farmers, and even they who adopt the former, admit the latter practice is best, particularly when light burning lands are to be manured, for light burning lands, in the language of farmers, eat up dung very fast; but when the dung is mixed with good mould (maiden earth) if it can be got, and turned two or three times, the seeds of the weeds will be destroyed, and when carried on the land will mend the staple for ever.

Mr. Hill keeps many horses, and one team for the pupose of drawing timber only, in which he deals largely; his horse-dung is thrown into a pit, and from thence carried in the winter on pieces of waste land, where there is a staple of good earth, or on places where the drift of roads have collected, mixed in layers with the earth or drift, and turned twice before it is laid on the land: the rector of Hatfield mixes his dung with the staple on the hedge greens; in short, this practice of mixtures or mixens is followed by all good farmers who have a permanent interest in the soil, and it gives more even crops, and for a longer time than the first-mentioned practice.

Composts.——It is the practice of some farmers to put layers of earth alternately with dung, as it is made in farm-yards, and then turn and mix them in the yards before the mixture is carried on the land. But these mixens are made with a view to futurity by those who have a term of years to protect their improvements, and where the rectors are satisfied with reasonable compositions. I valued a farm in the parish of Ashwell, and in an adjoining parish in the county of Cambridge, the 12th and 13th of May, 1794, in the occupation of an industrious and improving farmer, who kept his lands in as good condition as they could reasonably be expected in a common field state; about 260 acres of this land is in Ashwell, for which he paid Mr. Whitbread, the rector impropriate, a composition of three shillings per acre; about 20 acres in the adjoining parish of Great Morden in Cambridgeshire, did not appear to me to have equal justice done to them: the farmer's man who attended me gave the following very satisfactory reason. "The rector of this parish has for some years taken tithes in kind, and my master has never since suffered the dung cart to travel over the shire baulk."

The spit-dung, if clear of the seeds of weeds, is best calculated for strong heavy land, impervious strata (see *Drains*, page) the effects of the London spit-dung, or dung equally good, may be seen to an inch in such lands, for three or four succeeding crops. The mixens or mixtures of spit-dung and good mould,

or strong earth, are laid on light gravelly land, or where chalk or sand is the predominant soil, on all pervious strata. The mould is saturated with the fluid, and mixed with the solid part of the dung, the seeds of weeds therein have vegetated and been destroyed by the turning the mixen, and the staple of the land is thereby thickened and mended for ever. The eligibility of this practice is pointed out by the reverse; the Hertfordshire farmer, who lays his spit-dung on light lands, takes care to spread and plough it in as soon afterwards as he possibly can; but he is sometimes caught out: a heavy shower of rain falls upon his dungheaps, and washes the strength of the dung into the land; and the sites of the heaps are very visible in the succeeding crops. Pigeons and rabbits' dung are also procured in small quantities. The dust or scrapings of highroads is excellent mendment for meadow land, particularly if the roads are mended with limestone, and this manure, if mixed with and quickened by lime or dung, is equally good for ploughed land. The last and not the least of domestic manures, is sheep's dung: this most important stock to the Hertfordshire farmer, let the breed be what it will, derive their subsistence in the spring, summer, and autumn, from the clover leys, hedge greens, meadows, and pastures (if any), fallows and crops on the ground, where they may be turned on without injury thereto; at night they are folded on the fallows and other lands to be manured by their dung, in the winter they are folded and fed on turnips, winter tares, and other food provided for them. The dung of sheep is considered to be among the best manures for light lands, and carried on at little expence. Without this aid the state of agriculture, even in the well cultivated county of Hertford, would be much inferior to what it now is. While the ewe thus materially contributes to the promotion of agriculture, she yields a lamb in the spring, and a fleece in summer, and when old and toothless she is fattened (made meat of) in the autumn, by that second or third crop of clover which she has helped to raise.

The foreign manures are principally brought from London. Spit or horse dung is not carried above 12 or 14 miles from

thence; the market-towns in the county supply the rest. The following are perennial or lasting manures, and generally laid on light land; *viz.* boiled or calcined bones, sheep's trotters, furriers' clippings, horn shavings, leather cuttings, woollen rags, and soap boilers' ashes: the unburnt bones are broke into small pieces, and the woollen rags are also cut or chopped into small pieces, and all, except the last, throw off an annual coat of manure: the the unburnt bones, which are generally boiled, and the fat therein collected before they are sold to the farmers, are said to last as a manure for 10 or 12 years; but I am of opinion that the manure continues while a vestige of the bones remains; the exact period of duration I shall leave as a bone for such critics as may be weak enough to quarrel with opinions founded on observation, and content myself with quoting a case or two. On the high ground in the parish of Ashwell, and adjoining the road from thence to Baldock, are the vestiges of a circular encampment in the manner of a Roman stadium, and about a mile from the *Ichnield Way:* the soil is a very thin staple, on hurlock or bastard chalk, and which at the depth of 10 or 12 feet is good building stone, and much resembles the Tattenhoe stone. The fosse and mound have been levelled and ploughed in several parts; and there human bones have been uncovered and mixed with the soil: it has been remarked that the soil so mixed produces the best crops. These bones are certainly no proof of Roman sepulture, but Roman coins and pieces of altars with mixed characters thereon, such as are supposed to have been cut by the Greek sculptors in the Roman cohorts, are said to have been found here. If the bones were Roman, it is very possible the grave diggers were not. I saw among these bones the upper part of a human skull, but whether it was the remains of a Κεφαλη, a caput, or a Danish, Norman, or English head, exceeds the limits of a conjecture. The next case is more limited. The face of the country about Stour Head is marked with the indelible tread of mighty armies: here the great Alfred is said to have reconnoitered the Danish camp in the habit and character of a minstrel, and soon afterwards fattened these his tithings with the blood of his enemies. Where the bones of

the slain are now visibly mixed with the soil, it is the opinion that vegetation is thereby promoted. All these bones are now much broke, and very light and porous. I am aware that substantial reasons may be given to establish the utility of bones to land, after they may be supposed to cease as a manure.

Top Dressings.——The spring or top dressings are the leading features of the Hertfordshire farming, and consist of soot *ashes*, malt dust, and oil-cake dust or pulverized oil-cakes.

The soot and ashes are principally brought from London, the malt dust from Ware, Hertford, and other places where great quantities of malt are made, and the oil-cake dust from the different oil-mills in the county and neighbourhood. The soot of the best quality costs in London from 6*d*. to 9*d*. per bushel; but this article is much adulterated with cinders and ashes.

The dealers ware buy Thames to and where procure i

The ashes are the produce of the ash or dust-holes in London, and is a collection, when brought from thence, of coal cinders or ashes, wood ashes, whole or very often calcined oyster shells, sweepings of floors, &c. bones and rags. These are carried by the scavengers to their dust or ash hills, and there sifted and sorted. In the process of sifting, the bones, rags, &c. are separated into their different sorts, the larger coal cinders or breeze, are reserved for burning bricks, drying malt, &c. and the smaller breeze for mixing with the brick earth, to facilitate the making and burning the place bricks: the ashes which pass through the sieves are the Hertfordshire top dressing, and differ much in their qualities, the lighter the better, as they contain more wood ashes, and have been kept dry. But a few years ago, the assessments to the scavengers was a considerable burthen on the inhabitants of London; the case is now directly the contrary. The parish of Marybone then paid about £. 500 per annum; the contracting scavenger now pays the parish £. 1050 per ditto.

not fit

The soot is in general used on the wheat crops which have had no previous manure; it is laid in heaps on the crops in winter, and sown in the spring; the other top dressings are housed and kept dry till used. Hitherto very little attention has been paid by the scavengers either to the sorting or preservation of the ashes

from wet, and the farmer owes the goodness of those he uses to chance. The ashes made in the houses of the more opulent inhabitants of London are the best both for the maltster, brickmaker and farmer: the breeze therein is better, and it generally contains more wood ashes, as the practice of late has been to lay junks or pieces of dry elm timber on coal fires, to draw them up, and the ashes are also kept dry till carried away by the scavengers, who, in collecting them, should direct their servants or dustmen, to fill the same cart with such ashes only, and to lay them under sheds till they are sifted, sorted, and again removed by those who use them.

These top dressings not only supply the want of previous manure, but also when crops are sickly and backward in the spring, occasioned either by bad seed times, frosts, or other causes, are attended with wonderful success, and enable the crops to vegetate quickly, and cover and protect the soil on which they grow from the ensuing droughts of summer. To their almost magical powers the Hertfordshire farmers are principally indebted for their never failing crops. Without entering into chemical analysis to discover the cause, they are satisfied with the effects, and therefore continue to enlarge upon the practice, though attended with considerable expence. The provident farmer lays in a stock of dressings to answer contingencies, and provided with this treasure, he can remedy the evils of bad seed times and seasons. These top or spring dressings are peculiarly applicable to poor, light, sandy, and gravelly lands, and of course to the production of the specifically heaviest corn, and put such lands more on an equality in point of annual value with stronger and richer soils. Happy would it be to more distant farmers, and agriculture in general, could an adequate substitute to the Hertfordshire dressings be procured at an easy expence, and the application of that substitute perfectly understood.

I am decidedly of opinion, this substitute is to be found in many parts of the united kingdom, and particularly in Scotland, in great abundance, and is, peat or turf ashes, kept dry in ash-houses constructed for that purpose, and made fire proof; the

practice of Berkshire and adjoining counties containing peat earth, points out the use and great value of this substitute, it is also to be found in some pa ts of Hertfordshire.

The average price of the Hertfordshire dressings is as follows; oil-cake dust £.1 per quarter, to dress a statute acre will cost about £.1 5s.; malt dust 10s. per quarter, an acre requires about 40 bushels £ 2.; the carriage of the ashes is the principal expence, but it is presumed an acre, on an average of the county, will cost to be dressed with ashes, about 10s. but this depends much on the situation and quality of the ashes.

Peat Ashes.——The quantity of peat ashes used to an acre in Berkshire is from 15 to 20 bushels, and in proportion to the strength of the ashes, the price I now forget, but presume it cannot be less than 10s. An accurate description of the manner of cutting and drying peat, and preserving and using peat ashes, in such parts of Berkshire and Hampshire as they are found and made, and where their effects as a top dressing have been long ascertained, and in high repute, would contribute much to the promotion of this valuable practice elsewhere, particularly where peat and turf is the common fuel, and where the ashes cost nothing but the trouble of keeping them dry, and sowing them on the crops in the spring. The qualities of peat and turf ashes differ much in all countries. The opinion that the peat ashes of one county only are fit for top dressings is a mere joke, invented by interested farmers, who possibly never saw any peat ashes but those they use. In the valley below the Gattons, about Red Hill and Hooly Park, near Ryegate in Surry, there is as good peat as any in the kingdom, but the great value of peat ashes is not known there. In the valley which runs through Hooly Park, there is peat earth of considerable depth, this was lately drained, and the brook there carried under a brick arch of great length; the peat earth dug out of the drains &c. was burnt and spread on the made ground and meadows in this valley, and has greatly improved it: there are top dressings in this valley and neighbourhood to the whole parish of Ryegate for half a century. I have often lamented the ignorance or obstinacy of farmers, who

have ample opportunity of availing themselves of peat ashes; and neglect them. I will give a striking instance. At and in the neighbourhood of North Meoles, near Ormskirk in Lancashire, there is a whole country of peat, and how deep this soil is God only knows, for the horses which plough thereon wear *pattens* to keep them from sinking to the bellies: here I was not long ago deluded, by my ignorance of the country and a *team in pattens*, to attempt riding over ploughed ground to inquire my way. The parish of North Meoles contains about seven thousand statute acres; two thirds of which is very light, level, sandy soil, lying between the peat ground and the sea, the air of which, and a very little dressing, produces crops of fine barley and clover in dropping seasons on this very light soil. The common fuel of the farmers and numerous cottagers is peat, though pitcoal is plenty and cheap in this neighbourhood; but the peat ashes are thrown on the dunghills, and never carried on the land till the salts are completely washed out, and even then, are here considered to be good manure as far as they go. Surely no where are the means of improvement more ample, more applicable, or less attended to than in this parish; and it is to be hoped, that the giant pace of enterprize and improvement in this neighbourhood will not long overstep the Berkshire practice. The rectory of North Meoles is now worth £. 500 per annum at least, and is increasing in value. An open drain of great width and length is perfected through that and the neighbouring parish into the sea, with locks to keep out the tide, and scour the channel between high and low water marks, by the spirited and praise worthy exertions of Mr. Eccleston. This drainage lays at least 500 acres of peat land dry, which was formerly covered with water: and subordinate drains are now making into the great drain, to render the peat land arable without the assistance of pattens. At what an easy expence might this light land be doubled in value, the peat thrown up from the drains might, when tolerably dry, be shovelled in heaps and burnt, and ashes in abundance be stored up in ash-houses for spring or top dressings, or sown on the peat soil to improve and increase the grass thereon. The best and most valuable inter-

vening crops for the light lands in Meoles are clover and potatoes; for which last article a ready sale is found at Liverpool, from which it is distant about 20 miles, 18 of which is water carriage by the Leeds and Liverpool canal.

Peat Earth.——I have seen peat earth carried as a manure on light, burning, gravelly land, which had been beggared and left by a bad tenant; it cooled the land and much improved it. An industrious and improving farmer had, at great expence, drained a piece of flat land, which had been time out of mind flooded in the winter, and the clay loam thereon was covered with peat earth of different depths. After ploughing and manuring the land, he laid down about 12 acres of it to grass, about two years before I saw it; as the then general appearance and quality of the grass thereon was not likely to compensate for the great expence he had incurred, he requested me to tell him what I conceived would mend it. I was at that time walking near one of the wide deep ditches he had made, and observing with attention the striking difference of the herbage adjoining thereto; for about 30 feet in width, the ground was covered with natural clover; the clay loam thrown from the ditch had been spread so far and mixed with the peat earth by the plough. I drew the farmer's attention to this circumstance; he admitted the justice of the remark, wondered this circumstance of fertility produced by the mixture of these soils had not struck him sooner, and was happy to find he had the means of improvement so near at hand.

Grain, or seeds of any kind, if sown in and covered with any soil, in mere sand, in which there is sufficient moisture, will ferment and vegetate; barley, when immersed in water in the process of malting, vegetates and ferments, the bud or acrospire afterwards rubbed off, is the malt dust, and one of the Hertfordshire top dressings; therefore if grain or seeds are sown in the early spring, and before the summer droughts set in, there is no doubt but they will vegetate in the poorest soils, and without any manure, and that vegetation will maturate if supplied with a proper quantity of vegetable food. If this vegetable food is lodged in the ground prior and preparatory to the sowing of the

crop, it may in conjunction with a warm dropping season prove too much, and the crop run to straw; and in a dry spring season the crop be too light. The spring 1794 was remarkably mild and seasonable, and brought the crops which had been sown in any reasonable time very forward; little was to be apprehended from the ensuing droughts, the ground on which the crops stood was covered and well protected therefrom, insomuch that very just apprehensions were entertained that the crops would contain much straw, and little corn, which the ensuing dry summer prevented; so that in most counties the crops are in the hands of fate and the seasons; in Hertfordshire they are in the hands of the farmer, if the season has been unfavourable, and if a crop of wheat or barley is sickly, in a few hours he administers an almost infallible remedy with his own hands. The top dressings come in time to supply the want of previous manure, and little is to be apprehended from an over-luxuriant crop, frequently the consequence of too much of the dunghill.

The Hertfordshire top dressing practice has of late found its way into Surry, and some parts of Kent bordering on the Thames, as far as Sittingburn, and in that neighbourhood; but I understand the London ashes are apt to heat in the vessels which bring them down, and as this must be occasioned by moisture, they of course have lost great part of their virtues before they are used. The principal fuel of the inhabitants of Shaftsbury in Dorsetshire is wood, coals are burnt in the inns and houses of the principal inhabitants only; the sheep's horn-shavings and cuttings of the button-mould makers are mixed with the ashes. Some intelligent farmers in the neighbourhood avail themselves of the Hertfordshire practice, and sow this mixture on their crops, and which is now kept dry and sold to them by the inhabitants. The principal part of the fuel of the dairy farmers in Buckinghamshire, and adjoining counties, is dried cow-dung (cow clats) and the rest wood; the ashes if kept dry are capital manure for meadow land: they throw them as they are made on the dunghill, or sell the wood ashes to pot-ash makers—but all dairymen are wretched slovens: I have seen a few, but very few instances of

dry ashes being sown on crops in the neighbourhood of great towns in England, and hope in future that practice will be general wherever ashes of any sort can be found. I was several years ago in the city of Amsterdam in Holland, the principal fuel of the inhabitants there is peat or turf, with which that country about the Harlem-meer abounds. An ash tub or vessel standing at every door early in the morning attracts the notice of a stranger, and I understood the ashes made daily in every house are put into a tub at night, and carried and put by the door in the street to be emptied, and the ashes taken away by the scavengers next morning; and that these ashes were carried in vessels up the Amstel and Y rivers to manure arable lands. The principal fuel of most of the towns in Scotland, and particularly of the city of Aberdeen, is peat; the large annual revenue of that corporation is principally expended in decorating the environs of the city. The magistrates of Aberdeen have it amply in their power to appoint scavengers to collect the dry ashes, and to direct their uses in agriculture, and in the improvement of the barren tracts of land in their neighbourhood, to promote the growth of barley and clover, which most assuredly may be accomplished by this top dressing and sheep folding. The further we proceed north, the greater the necessity of top dressing, to counteract the late seed times and cold spring weather. The climate of the Orkneys and the other small islands is milder than the northern part of Great Britain; but the almost continued day for nearly a month together at Midsummer, during which the earth has scarce time to cool, renders top dressings, to enable the crops to cover the lands on which they grow, and protect them from the droughts, absolutely necessary.

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I have seen wheat and pulverized oil-cakes sown together from the same drill machine, and I then conceived that one at a time would have been better, first wheat and then oil-cake powder; my reason for this opinion is; as the due regulation of drill machines can only be determined by the regularity and sufficiency of the grain left by them in the drill furrows on inspection, and before it is covered with earth, a mixture of oil-cake dust would

render that criterion less certain. The Hertfordshire top dressing practice also warrants my opinion, that the oil-cake dust sown from the drill immediately on the line of the crop in the spring, and particularly if the crop is sickly, would give a phillip to nature at a very critical time, and enable it to cover the ground, and protect it from the ensuing droughts of summer, a caution by no means to be overlooked, particularly in light burning soils; for the Hertfordshire top dressings most assuredly come in aid of the crop when much of the strength of the spit-dung has evaporated, or been washed by the rains into the soil, beyond the reach of the roots of the crop. The very idea, however, of so closely connecting the grain and the manure, without carrying it into execution either way, has in my opinion great merit, and warrants me to point out a substitute for drilled oil-cake dust, where that species of manure cannot be procured.

That I may avoid the very shadow of partiality, sometimes imputable and applied, not entirely without reason, to gentlemen of the northern part of the kingdom, I shall retrench myself behind Farmer Ducket.

The uniformly light sandy soil of Esher was reserved for the genius of Ducket to farm with advantage, by a process unknown till he invented it: but this process has unfortunately been transplanted into very different soils, and there attended with very different success. Had the fertile invention of that heaven-born farmer followed, a different process would have been adopted and pursued. Notwithstanding my respect for this prince of the drill husbandry, the custom of others deludes me into unwarrantable liberties, but, I trust, with better intentions, and induces me to transport him, in idea, to the light soil of the shire of Moray in Scotland, where, I conceive, he would be completely in his element: there, I fancy I see him drawing with one hand from under his corn stack, his light, simple, drilling wheelbarrow, and in plain modest language, delivered with that perfectly intelligible frankness and urbanity which are natural to him, instructing his northern neighbours in the use and application thereof. Thus, would he say, I trim my brushes and apertures when I sow wheat;

thus, when I sow beans, &c. &c.; and thus when I sow *peat ashes* on my crops. He would then show them his skim ploughs at work, cutting the thin turf, and throwing it under their light staple to rot, instead of getting rid of it by a *practice* of which I hope they know nothing, and may for ever remain in ignorance. He would teach them to take three crops from one ploughing, that their light land may not be too much pulverized.

I am credibly informed, that near 50 years ago, the then occupier of a farm called *Carmount*, and very indifferent soil, on a branch of the Grampian hills in Kincardineshire, in Scotland, kept the ashes of his peat and turf (his only fuel) dry, and sowed them on his barley crops. This practice is still remembered, but, unfortunately, not practised by the neighbourhood, though attended with great success.

The heath on Ashdown forest in Sussex is cut with sickles and hooks, and stacked in the farm-yards, by some of the neighbouring farmers; the yards are littered therewith in the winter, and when rotten it makes good dung; the turf on which it grows is the principal fuel of the neighbouring cottagers, and the ashes thereof, if put on when dry, is the best dressing for their cold clay pastures and meadows.

Implements of Husbandry.——The Hertfordshire plough is on a very simple construction, with one handle; the line of traction is easily adjusted, and the ploughman, while he is in the act of pulverizing the ground very finely, walks bolt upright. The ploughs of the strongest construction for ploughing the strong flinty lands, or breaking up clover leys, have the share and heel of one piece of wrought iron: the heel is truncated to receive and protect the wood work from friction, and the beam is thickest at and about the mortise of the coulter, where the greatest stress lies. The lighter ploughs are similar in construction, excepting as to the heel. The harrows are in general smaller than in other countries; and the waggons and carts in general light and well made.

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Ploughs of various constructions, threshing and winnowing machines, and other implements of husbandry are introduced from time to time into this county, as well as other counties, to gratify the

The Hertfordshire share is better for plowing up strong land than other in England

whim of the moment. I applied by letter to the patentee of the threshing machines, and would have annexed a drawing thereof if I had obtained his permission.

Oxen or Horses.——Horses are in general made use of. Oxen are used by some gentlemen, and Mr. Casmajor in particular, who has taken some pains to improve his breed, as follows: he applies to the London cowkeepers, and bespeaks the calves of some of their handsomest cows, these are sent to him as soon as they are calved, and brought up by hand, which renders them very gentle, and are generally, like their mothers, handsome and well shaped. He had his first bullocks from Sussex, broke to his hands, to these he yoked his young bullocks, who soon became tractable, and so gentle that they are shod standing; he gives his bullocks not so much hay as they can eat at a time, and they chew the cud at the intervals of feeding, by which means their food is better digested, and less hay is consumed, with equal or more benefit to the bullocks. I saw about a score of his yearling and two year old bullocks grazing together, they had all the marks of strength, and were very handsome. In strong heavy lands, a team of bullocks, either alone or mixed with horses, are very useful, and they are much easier kept than horses, and at less expence; but in light, stony, and gravelly soils horses are much better.

Seed Time and Harvest.——The lent corn seed time is from about the middle of March to the first of May; and the wheat seed time from soon after Michaelmas till towards the end of November.

Land Inclosed or Open.——The land is generally inclosed, though there are many small common fields, or lands lying intermixed in small pieces, the property of different persons, which are cultivated nearly in the same way as inclosed lands; the larger common fields lie towards Cambridgeshire.

By the inclosure of lands, rents are frequently nearly doubled, and the land when inclosed is worth, in many instances, double the inclosed rent, as the tenant can then crop and improve it as he pleases, instead of its being fallow every third year, which is

generally the case in common fields of considerable extent. In some uninclosed parishes, such as Ashwell, the farmers, by agreement among themselves, sow clover amongst the lent corn, and each farmer takes a certain piece of land lying together, containing 20 or 30 acres, and incloses it with a dead fence, which he removes for fuel, after he has had the crop and sheep feed, and shortly before the land is again ploughed for a crop of wheat. When common fields are inclosed, the commons and wastes or unknown lands appurtenant thereto are also inclosed, and again so divided that each proprietor has his allotment lying together, and as convenient to his homestall as possible in the village, which is generally near the centre of uninclosed parishes; or it may be more eligible to the largest proprietors to have an allotment at one side of the parish, and build a new farm house and offices thereon.

The old inclosures in Hertfordshire are generally proportioned, as in other counties, to the size of the farms in which they lie, and when small holdings are thrown together, many of the subdivisions are grubbed up and levelled: and if again separated, new subdivisions are made for the conveniency of the occupiers. In poor hilly countries the inclosures are in general small. The inclosing fences are white thorn or hazle, or a mixture of both, intermixed with elm and other underwood.

There are, I believe, no instances to be given of inclosures decreasing population, except where the lands inclosed are convertible and converted to meadow and pasture; such inclosures have a tendency to decrease population, as a great part of the labour attending ploughed land ceases; but in all other cases, inclosures not only increase population, but are productive of additional food and labour, for that increase. The inclosure of such of the Hertfordshire commons and wastes, as will be more productive in an inclosed state, will increase population, as they are tillage land.

There are several small common fields in this county, or lands of different proprietors, lying intermixed in small pieces, and open to each other, but these are mostly, by agreement among the

owners or occupiers, cultivated nearly in the same way as in an inclosed state: were exchanges to take place, there is no doubt but such lands might be cultivated to more advantage. I have not understood that any inclosure or division is proposed.

Commons.——There are several small commons and wastes from 20 to 50 acres, and some considerably larger, the whole may contain 4500 acres: great part of these are the sheep downs skirting the county next Cambridgeshire, and other similar sheep downs producing sweet pasture on a very thin staple. These sheep downs, if not overstocked, are valuable in their present state, as they afford pasture for sheep in the spring and summer, and the sheep are folded every night on the light land fallows adjoining, and manure them with their dung. It is the opinion of woolstaplers that the wool of sheep so fed, is longer in the staple and finer in the thread, than of those fed in inclosures and better land. The common near Marget-Street contains about 600 acres, part of which is said to be in Bedfordshire; this is in general good land, and worth from 12 to 15 shillings per acre per annum; the other commons and wastes, time would not permit me to examine with that attention which could warrant me to give a decided opinion of their value, they are mostly poor, gravelly, or chalky soils. Ashwell cow common contains about 150 acres of good land.

To ascertain the advantage resulting to the public from the inclosure of common fields, commons, and waste lands in general, the prevailing arguments against inclosing must be seriously considered; and if it shall appear that any description of persons have been injured by inclosures hitherto made, that injury may be avoided in future inclosures. And first,

The injury said to be sustained by the poor.

This leading argument, like Aaron's serpent, swallows up the rest, and leans so strongly to the side of humanity that the best minds are soonest led away by it; I will venture to say that it has hitherto been in a great measure upheld by this characteristic bias of the country.

The poor here meant are cottagers having common rights, *

* 20 common rights by
g land except for
See the other side p. 52.

and labourers or servants employed in husbandry, and if the inclosure of common fields is considered in one narrow point of view only, the practice will appear to lessen the labour of the poor; for ten, or any given number of acres lying together, are cultivated in a shorter space of time, and with less labour and trouble than the same quantity of land lying in separate half acres and roods, and scattered over a large common field. It will even be admitted, that in many cases three teams will plough the same quantity of land in an inclosed state, which would require four teams in an open field state; the labour of one ploughman, driver, and team in four would be sunk by the inclosure, though the land when inclosed may be doubled in value, and the loss of labour would not end here, admitting that the land to be inclosed is properly tillage land, for the injury would descend through the ploughwright, blacksmith, to a whole team of horses, &c. &c. This land when inclosed will require hedging and ditching, the turnip crops thereon hoeing, the second crops of clover cutting and making, one third more of the land constantly cropped will employ more weeders, and the occupiers of the land be better enabled to pay their labourers their wages.

It must be admitted, notwithstanding, that when the land to be inclosed is proper meadow or pasture land, that is, would be of more value if converted to dairy or grazing farms, than continued under the plough, a conversion of this sort would materially affect, and does, wherever it happens, materially affect the poor, who are tied to their parishes by the poor laws, and cannot emigrate with their families in quest of bread. The scanty allowance of a parish to alleviate the wants of starving children, is a poor compensation to an honest hard working father, for the loss of that labour by which he had thentofore cheerfully sustained them, and some palliative should be applied to all these heartbreaking cases.

The capital machines of late invention and unrivalled excellence applied to our staple manufactories, though at first complained of, have added in a tenfold ratio to the labours of the

infant poor; the energy of the manufacturer, the enterprize of the merchant, the comforts of peace, and the sinews of war.

The next item to be considered in the catalogue of injuries is, in my apprehension, of a much more serious nature, and requires the deliberate investigation of the most consummate abilities before a remedy can with safety be applied; let it be my humble office to point it out.

To almost every common field, common, or waste within the kingdom there are cottage rights annexed; how these rights accrued, whether by sufferance or otherwise, is now out of the question; they are grown into *prescription*, the great landmark of the sons of the soil, the fulcrum of the best poized constitution that human talents ever formed, and which must be touched with due caution.

It will readily be admitted, that the advantages derived to cottagers from this right is in most cases merely ideal, while the public sustains a serious loss by lands of this description not being either at all cultivated, or cultivated to the best advantage.

Nearly the whole of the parish of Ashwell is uninclosed; abounds with cottagers, having common rights over a very good cow common, containing about 150 acres, a great number of wide baulks and wastes interspersed in the common fields, and the run of the fallow fields in one of the largest parishes in the county of Hertford. The cottagers of Ashwell have also this peculiar advantage, every cottager is entitled to depasture two cows, and no inhabitant of the parish occupying one house, and maintaining one family, has a right to depasture more, let his holding be ever so extensive; therefore, if common rights can advantage cottagers any where, those of the parish of Ashwell certainly will; but very few of these much favoured cottagers have wherewithal to purchase a cow, and if they had, they cannot get provender to maintain her in the winter; the consequence is, that only eight cows were kept by cottagers in Ashwell in the year 1794. These cottagers have also a right to lead (as they term it) their cows on the baulks and wastes interspersed in the common fields.

= Lord Kenyon's opinion ...
25 Jan.
in Middleton & and Surveyor
row, Lambeth.

at all times, and while the crops are on the ground. The exercise of this right is the source of much injury to crops, cultivated with great care and expence, and which have afforded bread to the numerous poor of the parish employed in weeding them. But this right, though productive of little good, and much mischief, must not be wantonly annihilated; for the cottager of Ashwell, who has neither the means to purchase a cow, nor provender to feed her in the winter, values himself on his common right, he looks with an eye of jealousy on a proprietor or occupier, if he incloses a very small part of the known land, or ploughs but a single furrow from a baulk or waste. If the cottager cannot purchase now, he cherishes the hope that he may be able to purchase hereafter; this hope may never be realized, but it is his present, and perhaps his future substitute for a cow. A majority in number and value of the land owners in Ashwell, might on application to parliament obtain an act to inclose, and to allot a portion of land to the cottagers adequate to the value of all their common rights, but not adequate to what they now are in their idea, could they exercise them; they would therefore, no doubt, grumble at the exchange, though for the better to all parties. The cottagers of Ashwell, though numerous, are by far too feeble to resist the force of an act of parliament; but the cottagers (the poor of the kingdom), are the many; therefore a general scheme of inclosure must be managed with more dexterity to prevent mischief.

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The increase and employment of the hardy peasantry of the kingdom, are objects of first rate import, and therefore I humbly conceive, that a public act warranting the inclosure of commons or wastes, in a way less expensive than that hitherto adopted, requiring, as a preliminary, the consent of three-fourths of the cottagers in the parish or place to be inclosed, and guarding with the energy of patriotism, the interests of the sons and daughters of the soil, would be attended with the happiest effects; as I am satisfied that this consent of three-fourths of the many may easily be obtained, provided they are fairly and honestly dealt with.

As the county of Hertford is by far too narrow and unpro-

ductive a field on which to investigate the actual state, and determine the claims of cottagers at large, I must beg leave to refer to what experience has taught me of the actual state of cottagers, as far as my experience has reached. Where wastes and commons are most extensive, there I have perceived the cottagers are the most wretched and worthless: accustomed to relie on a precarious and vagabond subsistence, from land in a state of nature, when that fails they recur to pilfering, and thereby become a nuisance to their honest and industrious neighbours; and if the father of a family of this sort is withdrawn from society for his crimes, his children become burthensome to the parish. It may truly be said, that for cottagers of this description the game is preserved, and by them destroyed; they are mostly beneath the law, and out of the reach of detection, and while they can earn four or five shillings, and sometimes more, in a night by poaching, they will not be satisfied with 10*d.* or 1*s.* per day for honest labour. A reform here is absolutely necessary, whether by consent or otherwise, and an inclosure of the commons and wastes will afford these cottagers an honester livelihood, if they think proper to embrace it; if not, brighter prospects will thereby accrue to the rising generation, who may not be so hardened as their progenitors. Landed properties in manufacturing towns and parishes are heavily loaded with poor rates, when the manufacturers are not employed, and parishes in which boroughs are situated are almost without exception, loaded with poor of the very worst description; these I leave entirely to the wisdom of the legislature, as any hints of my suggestion may be construed into a parallel between the borough cottagers and their present reformers. I am satisfied that the honest industrious cottagers every where, to whom commons are of very little advantage, will acquiesce in inclosures, provided their consent is asked, and an equivalent held out to them for their cottage rights.

Though Hertfordshire contains less waste than most counties in the kingdom, there are notwithstanding several small commons and wastes, from 20 to 50 acres and upwards therein, which though no object of inter-commonage to the parishes where they

lie, are notwithstanding, when taken collectively, an object of some moment to the public; and as there are similar small commons and wastes in every county in the kingdom, the object is by that circumstance greatly enlarged; a partition of these commons would not compensate to the persons having common right therein for the expence and trouble in making that partition valid, though none of them will suffer another to usurp his rights, therefore these commons and wastes remain uninclosed.

As it is a matter of indifference to this Honourable Board, and to the public, whether such commons and wastes are cultivated by A or B, provided they are cultivated, the interests of all parties may be concentrated by a public act warranting the inclosure thereof, with the approbation of three-fourths of the land owners, including the lord of the manor, rector, or vicar, or both, and three-fourths of the cottagers; and empowering the lord of the manor, the rector, or vicar, and the overseer of the poor for the time being, to let the commons for 21 years to the highest bidders, or for the best rent that can be got for the same, giving a preference to industrious cottagers with families; the rents to be applied in the first place towards the discharge of the expences incurred by the inclosure, and for ever afterwards one twentieth part thereof to the lord of the manor, one tenth to the officiating clergyman, provided his stipend is less than £100. per annum; and the residue in discharge of the poor rates, or land tax, in case of a surplus: future leases to be granted by the same parties or their successors, and the surplus of rent to be received and accounted for by the overseer for the time being. The inhabitants of the parish of *Dale* may not be disposed to inclose now, if aided by such act, but they may afterwards.

Appeals may be made to the justices at the quarter-sessions, who should, in these small matters, be the *dernier resort*; and the consent of the parties, inclosure, &c. be certified by them, and enrolled in chancery, *in perpetuum rei testimonium*.

In common fields where the separate properties are ascertained by buttals and boundals, and are called known land, in contradistinction to commons and wastes, which are called unknown

land, the now straggling state of landed property so circumstanced, though of considerable annual value, renders an equitable exchange of lands necessary, to promote the cultivation and improvement thereof; in these cases, actual surveys and values must be made, to ascertain with precision the values of the separate properties, and under the direction of commissioners appointed by the general consent of the land owners. A whole parish is converted into a money value, future and more convenient roads are marked out, an adequate portion of land is allotted to the church, in lieu of tithes; the lord of the manor has generally one twentieth of the common or unknown land, quantity and quality considered, and each separate proprietor has a new estate marked out for him, lying together, and as convenient as possible to his homestall, and duly proportioned to the value of his former estate.

Professional men have hitherto considered the aid of parliament necessary, to confirm the inclosure of property of this sort and magnitude, either before or after the inclosure thereof; as in most cases there are parties interested who are not competent to give their consent. The chancellor may be empowered to consent for such parties upon petition, and direct issues in cases of disputes or differences among the proprietors. But the interests of cottagers must be attended to, and the consent of three-fourths of persons of this description had, before any public act of inclosure can, with safety to the peace, and I may truly say, the interest of the public, be carried into effect. I repeat, that I am satisfied that this consent of three-fourths of the *many*, may easily be obtained, provided they are fairly and honestly dealt with, and have separate allotments adequate to the value of their common rights.

It is for the benefit of the state that the cottager's allotment should enure to his children, the future guides of the helm and the plough; to restrain him from alienating would be unconstitutional; but the cottage and its appurtenances may be exempted from all rates and taxes while they remain in the family. The hope of rewards is better calculated to render mankind virtuous, than the fear of punishment.

Crown Lands,——Though the landed property of the crown is not specifically included in the queries of the Board, it may notwithstanding be included under this head, as it forms a considerable part of the waste of the kingdom. The New Forest in Hampshire, is alone of great extent, nearly the whole properly tillage land, and bears all over, the marks of former occupancy and the plough; very little of the timber thereon either is or ever will be fit for the purposes of ship building, and it may with justice be considered a common only to the surrounding inhabitants and parishes to the distance of 15 miles and upwards therefrom, who have acquired a right thereon in this way. Cottages have been built from time to time in different parts of the forest, by howards or herdsmen, who look after and tend such cattle as are sent to them, no matter from whom or whence, at so much a head; so that the New Forest is become a common to a considerable part of the counties of Hants and Dorset. Were the crown disposed to inclose a part of this forest, to protect the young timber from the bret of cattle, there is in fact no succession to protect, it would therefore not be an object, and would besides raise a nest of hornets, disturb the peace of that part of the kingdom, and become a watch-word to those who are prone to mischief every where. A public sale of this forest in lots would, I apprehend, be relished much better, and if judiciously managed, would, I am satisfied, sell for much more than it is really worth, and better than perhaps any other tract of similar extent and quality upon the face of the earth. An equivalent in money may be given for the now value of the commonage, brushwood, and turbary, to those who are fairly entitled to it, instead of allotments to parishes, in lieu of common rights, and which would remain uncultivated, and like several of the allotments of Enfield Chase, of little use to the public; this may serve as a precedent for all the crown forests and chases in the kingdom, and equivalents in money given to those who have a permanent interest therein.

The grand junction canal passes within about a mile of Whittlebury forest in Northamptonshire, and I am of opinion a side

cut may be carried into the middle of the forest; the timber here is like the timber on all forests, not much to be relied on: there is abundance of compass timber, and several stern posts and stem pieces, if sound; but I fear very little plank timber, which becomes scarce every where. Whittlebury forest and its purlieus contain a large tract of fine and valuable land, now lost to the public. The gravelly soil of Epping forest will produce valuable crops, when aided by the Hertfordshire top dressings and sheep folding.

The honors or seigniories of the crown produce nothing, or worse than nothing: of the seven wapentakes in the West Riding of the county of York, five are within the view of frankpledge of the duchy of Lancaster; several of the manors have been granted away since the inquest of Elizabeth, and individuals have been encouraged to usurp the manerial rights of most of the rest, by the supineness or connivance of the officers of the crown; pretended lords of manors have from time to time inclosed large commons and wastes, to the great prejudice of those who had common rights therein; and the *nullum tempus* law was fabricated to secure a separate right to the usurpers, but liberties and franchises were excepted.

The honors of Clare and Mandeville extend into Hertfordshire, Essex, Suffolk, Middlesex, and Surry, and still contain a great number of manors and separate parcels of land, for which ingress, and alienation fines, and quit-rents, are payable; these were also long neglected, and payments refused to the applications of the stewards and lessees of the crown; in consequence of such refusals informations have of late years been filed and proceeded upon in the duchy court of Lancaster, and payments thereby enforced. I understand the lessee is now paid *com. ann.* between four and five hundred pounds, his rent to the crown about £10. the fees and perquisites of the steward are also considerable; when he receives a fine or quit-rent of one shilling, he charges three shillings for a receipt. The leases of the honors of Pontefract, Clare, and Mandeville, are nearly expired; the stewards hold their places by patent under the duchy seal.

These and other not mentioned parts of the now *unprofitable* lands of the crown, if brought to market with judgment, and disposed of by public sale (the most unexceptional way) under the conduct of those who are the most celebrated in the line of their profession, will produce *a very large sum*, which may be funded, and create a *substantial* revenue to support the dignity of the sovereign, and the establishments of a numerous and illustrious family: the advantage to the public will be still greater. I am aware that I shall not be thanked for this information, so far, by those whose interests clash with that of the public; and therefore shall be silent as to the improved part of the estate of the crown, in which the public and I have no concern.

Draining of Land.——This is a curious and interesting subject, and should be fully explained, and the materials used in different countries to keep the drains open, mentioned. I have no doubt but the gentlemen who have reported the state of agriculture in counties where draining is more in use than in Hertfordshire, where natural drainage does so much, have fully explained the methods practised there; I am aware of the benefits resulting from this practice, and therefore shall contribute my mite.

The theory of land draining is combined with the different strata of which the earth is composed, and the rain water in contact with these strata. A uniform deep chalk stratum covered with a thin staple or strata, which are pervious to rain water, imbibes and filtrates the water, which is again disembogued in distant valleys at the extremities of the chalk stratum, which often extends for many miles—hence the great scarcity of that necessary element in chalky countries. In countries where the universal substratum is a porous limestone rock, as the Mendip in Somersetshire, at and in the neighbourhood of Piercefield, in Monmouthshire, and many other places, whole mill streams and rivulets are swallowed up, unite in the bowels of the earth, and issue again to the day from the sides and bottoms of hills in considerable rivers. In similar situations land and other springs, which injure the crops, are got rid of by a very easy process, which will be mentioned afterwards. I must here remark,

that the best and sweetest herbage is generally produced by a thin staple on a calcareous substratum, though in no great abundance; were the staple impervious, or exposed to land springs, the case would be otherwise. The thin stapled downs on chalk skirting this county next Cambridgeshire, are fine healthy sheep feed. The beautiful undulating carpet on a limestone rock, at different depths of staple in Piercefield park, is not the least of the numberless beauties of that enchanting place. I was guided to a discovery of the Hopton wafers limestone by the herbage on the thin staple above it.

In clay soils, rain water can escape by the curvature of the surface only; hence the necessity of throwing the staple into high ridges, or hollow draining it, particularly if the surface is level, to facilitate the escape of the superabundant moisture. The prints of the feet of cattle in this soil will hold water like a dish; it cannot be properly ploughed or wrought in a wet season, and therefore called unseasonable land, and most profitable in meadow or pasture in general, though the grass may be coarse; but when in that state is must not be too much trodden by cattle in wet weather, particularly in winter, to break the carpet. Where the soil is composed of different thin strata lying above one another, and the upper stratum or staple is pervious, with an impervious stratum under it, the rain water is imbibed by the upper stratum, and again discharged at the lower sides or ends of it, these discharges are commonly called land springs. In brows or declivities and sides of hills, the ends of the different strata appear one above the other, and here the land springs issue from the pervious strata which have been saturated by pervious communications from a great extent of level surface above, and drown the lands lying under the places from which they issue; in such cases drainage is most materially wanted, and in the latter case a ditch or drain is cut along the brow of the declivity in the sound land, a little above the land springs, giving the drain a gentle descent till that direction ceases to be necessary. The drain is cut through the pervious stratum, or strata of sand and gravel, and about six inches into the impervious stratum below; the width and slope of

the drain are regulated by the depth and concomitant circumstances; the ends of the drains are turned to the quickest descent. When the drains are thus dug, they are kept open, and from the tread of cattle, till the effects produced thereby can be clearly distinguished. If the land is completely drained, they are filled up; stones, black thorn, elm, or other brushwood, are put in first, then straw or heath, or the turf cut from the top of the drain, if in pasture, with the grassy side downwards, before the earth is thrown in. In some counties, particularly Leicestershire, where stones and brushwood cannot be procured, surfing bricks are used, and which, in my opinion, should always be used where stones cannot be procured, and brick earth and fuel are plenty. a surfing brick is about a foot long, five inches wide, two and a half inches thick, and excavated lengthways on one side, so that two bricks put together form a cylindrical tube, about three inches diameter, these will make a tube of any length to convey water underground, and last for ever. The turf, if any, or a little straw or heath should be laid along the top of the surfing bricks before the drain is filled up; the water passes through the joints between the surfing bricks into and along the tube formed thereby. While the drain is open, separate drains are made thereinto from any remaining springy places lying above it; and those lying below must be got rid of by separate drains also.

Were more attention paid to the forming and laying out of inclosures, and scouring ditches from time to time when wanted, less drainage would be necessary, particularly in impervious clay lands, the staple of which should be laid as hollow, and as little subject to the drip of lands lying above them as possible. To facilitate the escape or passage of the superabundant moisture which cannot escape through the soil of level lands of this description, they are hollow drained. Suppose a field of this sort of land, about 1400 yards long and 600 yards wide, containing near 16 acres, and inclined breadthways about 10 degrees to the plane of the horizon, about five principal drains are made from the top to the bottom of the field breadthways, parallel to and equidistant from the end ditches, and from each other; these drains are made

about two feet six inches deep, about fourteen inches wide at top, and four inches wide at bottom: cross drains are then made all over the field, from five to seven yards asunder, so that the field is a net work of drains; the cross drains are about two feet deep, and of the above dimensions in other respects. In Hertfordshire the drains are filled, by laying in first, black or white thorn, or elm, or other brushwood, then the stems thereof, or pieces of top wood, three or four feet long, and nearly as thick as a man's arm, one end of which is higher, so as nearly to be touched by the plough, the earth is then thrown in and trod down; by this means every plough furrow is a little drain communicating with the cross drains at different parts, and the superabundant moisture and land springs, if any, thereby escape into the principal drains.

The Rev. Mr. John Keate was inducted to the rectory of Hatfield about the year 1787, the glebe contains about 100 acres, and had been before that time let to tenants who had beggared it, and in order to improve it he took it into his own hands. A field containing about 17 acres adjoining the parsonage was improved in the following manner: the descent is breadthways, and nearly level towards the lower side; the staple a strong clay loam, admitting a furrow about 13 inches deep, on strong clay mixed with flints, in general large, and in some places lying in different strata: three pits were sunk in this field to the depth of 20 feet and upwards to find chalk, without success; in one of the pits a stratum of white loose sand, about four feet below the surface was sunk into about 10 feet, when the pit fell in and was then abandoned: the field was then drained by four principal drains, and cross drains from 5 to 7 yards asunder, of the dimensions and filled up as above mentioned. I saw this field in August, 1794. On the side of the field next the house and farm-yard, about two acres of lucern was sown broad cast about three years before, and after the drainage and following preparation; about five acres on the house side of the field was chalked from a pit in the field above, about 50 loads of good chalk to the acre; the dressing was a mixture or mixen of earth and dung; the soil (hedge green) to the distance of about 16 feet from the stem of the hedge was

dug up about 16 inches deep, and to every layer of this earth about 6 inches thick, a layer of dung, principally made by bullocks fed with oil-cakes, was put: three layers of earth and three of dung, laid alternately on each other, composed the mixen or dunghill; this was turned once only, and laid on the land the latter end of April, ploughed in directly, and sown with buck wheat and lucern broad cast. The buck wheat was reaped about a fortnight before the Michaelmas following; and on the first of May next year the cutting the lucern was begun; it was cut three times that year, and given green from time to time to the working horses, and they throve well upon this food; it was also given to the milch cows from the cribs in the farm-yard at night, and they gave in consequence abundance of milk. The cutting the lucern in 1794 began the 24th of April; the whole had been cut twice, and a small part the third time, when I saw it, the first crop was a yard long all over, the second crop as good, but the dry weather had hurt the third crop, then cutting, and it was not so even as the first and second crop. In November, 1793, the lucern had a coat or dressing of burnt or calcined bones laid on it, brought from London, at 5*d.* per bushel, carriage included, and about 80 bushels, £1. 13*s.* 4*d.* per acre. A man and a horse and cart will spread or sow an acre in about four hours.

The adjoining three of the five acres that were chalked were also manured with the dung of cattle, fed principally with oil-cakes, 10 good loads to the acre, then sown with buck wheat; and this year the crop of barley on the buck wheat stubble was, without any further dressing, truly capital, and which in a less dry season would have run to straw, or been laid, or both.

Five acres adjoining were also cropped with barley, on a summer fallow, and dressed with dung and mould, 20 loads to the acre. Mr. Keate's bailiff computed 6 quarters on the chalk, and 7 ditto on the tilth; but I considered them more on an equality (about a 14th return).

Three acres, then cropped with turnips on a summer fallow, half of which was dressed in the spring with boiled bones, which cost at Hertford 12*s.* per chaldron, 4*d.* per bushel, three chaldrons

to the acre, which is there considered to last or give crops for 8 or 9 years, with the assistance of a top dressing of ashes to the barley and clover crops. But I am of opinion the good effects of bones as a dressing for land, will enure for some centuries; and I ground this opinion on the effects produced by bones heaped together by the folly or madness of mankind, and which are the only remaining evidence of that malady of their former owners. The other half was dressed with dung and mould (mixen), the tilth sown with turnips, inclined to what is called hazle mould, but stronger, and then wrought like an ash heap.

The remaining four acres were cropped with buck wheat sown about the middle of May, about an acre and half fallow on wheat stubble, and the whole dressed with *mixen*, about 20 loads to the acre; two bushels sown on an acre, return expected 40 bushels per ditto, to be cut about 3 weeks before Michaelmas, and followed by a barley and clover crop. Buckwheat, the same value as barley, about 38*s*. per quarter, is ground and mixed half and half with barley meal for hog meat; it is also given to poultry, and considered excellent food for both.

Having thus coupled the drainage and subsequent manurage of an impervious superstratum, and with pleasure dwelt upon the effects produced thereby, I cannot now return to my text before I have given a further report of this gentleman's improvements in general.

The nine acres, or How croft, to the south of the house, has a good fall or natural drainage, and nearly east aspect, the staple is of different thicknesses, on strong clay, with little or no mixture of flints, and shows under Mr. Keate's management what may be done with *lime rubbish*, chalk, and mixens. About three acres next the house is, in the language of the bailiff, of a mouldy sort, that is, about 16 inches staple, of a good, free, working soil. A thin staple on the clay, on the greatest part of the rest of the field. —The parsonage house, principally built with timber, and lath and plastered, was formerly very extensive: Mr. Keate pulled down a considerable part, and repaired the rest. About three acres of this adjoining field (the loamy sort) was dressed on the

tilth with the lime rubbish of the buildings so pulled down and repaired; the quantity per acre not ascertained, and no manure or top dressing whatever besides. The first crop barley and seeds, produce about seven quarters of barley per acre; two loads and a half of first crop, and one ditto of second crop of clover per ditto. This year (1794) the wheat crop about thirty two bushels and an half to the acre, though the straw was about five feet and a half long, and about a fourth part of the crop laid; the stubble as thick as reeds. About six acres were chalked from a pit in the top or upper part of the field, about 60 loads to the acre, and also dressed with mould, only about 20 loads to the acre; the chalk and mould laid on the tilth; this produced about six quarters of barley, a load and a half of clover, the first, and a load the second crop, per acre, and this year about 29 bushels of wheat per acre.

Mr. Keate has also drained great part of his grass land, and dresses it with calcined bones, about 80 bushels per acre, which costs about £3. 17s. and also with drift sand or road dust. He cuts his clover and grass much earlier than others, before the underleaves have fallen from the stalk, and in the most succulent state of the plant. The hay requires more time and labour in the making, but is much better, and more nourishing for cattle. I viewed the dell from which he takes the soil to lay on his meadows; it is a deep ravine or cavity surrounded by clay lands, for the most part rising therefrom. Whether this was anciently a chalk pit and excavated by art, is now uncertain, the surface is at least half an acre, and filled to a considerable and yet unexplored depth with very fine washed brick earth, brought there by the floods from the clay lands, and deposited from time to time as the flood water sunk through the chalk below, or evaporated. With the top soil he dresses his meadows, but the under soil is of much greater value to a brickmaker, and would be a treasure of some consequence if near London.

Mr. Casmajor farmed his own estate at High Canons, in the parish of Shinley, about 6 miles beyond Barnet, for 11 years and upwards; it contained about 316 acres, mostly wet, unseasonable, clay land, and the whole a very indifferent subject to

work upon: he began very properly, and to use his own words, by tapping the land; he drained it, and had, when I waited upon him by the directions of this Honourable Board, very properly converted great part of it to grass.—His then composition for tithes, was to his composition about 11 years before, nearly in the ratio of three to one.

To enumerate the various ways by which drainages have been effected, either by design or accident, would require more time than I can bestow on the subject, I shall therefore content myself with a few striking instances both ways, and which will tend to show that in making drainages on the great scale, in tracts of level land containing a thousand acres or upwards, and of lakes of great extent, but considerably above the level of the sea, methods, hitherto not practised, may be tried at no great expence, and with a prospect of success.

If a pit is sunk 20 or 30 feet deep, in the middle of a field, through the Hertfordshire red, flinty, and impervious clay, into the chalk below; when the usual quantity of chalk is taken out, the pit shaft is filled up with the flints taken out of the chalk and clay, and the top drainage of this part of the field much shortened for ever afterwards, by making principal drains from the part of the field above the level of the top of the pit, terminate therein, and the superabundant moisture will escape through the flints in the pit shaft to the chalk below. And if a drain is carried into a limestone quarry, it is seldom necessary to carry it further.

A well is frequently sunk through clay, then gravel containing land springs, then a quicksand, containing land springs, and into a rock to a great depth, before a vein is cut: a considerable spring or little subterraneous rivulet then runs in at one side of the shaft, and out at the other: a cess-pool is made below the entry and exit of this abundant spring, to contain a sufficient depth of water to dip a bucket therein, the land springs run down from different parts of the shaft to the bottom, notwithstanding which the water never rises, at any time, above three or four feet higher than the usual level. This well may be from 50 to 100 feet deep, and if a small stream is conveyed into it from the surface,

the water will never rise to the top, but escape by the pervious strata which have been cut through at different depths in the well.

In dells or hollows of considerable extent, covered with an impervious stratum, and from which there is no natural drainage, such as the valley between Mold, the shire town of Flintshire, and the adjoining high land, a pit about four feet diameter, and fifteen feet deep, more or less as the case may require, is sunk through the impervious superstratum into a pervious stratum of gravel; and the rain water, and of some adjoining springs are carried from the surface thereby: the pit is railed round to prevent cattle falling into it. I must here remark, that though in this, as well as in many other instances that may be given, the top water escaped through the pervious substratum, the effect might have been directly the contrary. I would therefore recommend the impervious superstratum, in all such cases, to be perforated by bore rods, and the hole made by them is easily stopped up. Near the turnpike road from Mold to Denbigh, and about a mile from the former place, the far-famed, wonder-working St. Winifred's well has totally disappeared ever since the great level to the Chlin a'Pandy lead mine has been drove, and which passes many fathoms under the spot from whence this spring issued, and left not a drop of this panacea for all the maladies incident to human nature. About a mile further, the Denbigh road passes through a morass, on the top of the mountains, surrounded by a ridge of hills, a small stream of water runs from this morass into a *swallow*, in the limestone rock, on the surrounding ridge, and points out to lead miners a hitherto unexplored road to fortune, without the expence of a steam engine or level to take the water from the mine. The water was raised by a steam engine about 60 yards from a colliery in Yorkshire, which had been wrought several years; the proprietors bored down to the depth of about 10 yards further, to ascertain the depth and thickness of a seam of coals, which was supposed to lie below those then wrought; the workmen employed, bored from the bottom of the pit next the engine pit, and when they had bored to the above depth, and taken out the rods, the water from the

works which usually ran across the bottom of this pit to the engine sump, run down the hole they had then made. As soon afterwards as the steam engine was set to work at the stated period (about one hour in twelve) the engine sump contained little or no water; it had escaped through this hole, and continued to run through the same for ever afterwards, and rendered the engine useless. This last instance of water at so great a depth from the surface finding a passage at a further depth of 10 yards, or less, and immediately below, is very singular and striking. The situation was much higher than the next adjoining valleys, and the level of the sea. Experiments of this sort seldom fall to the lot of man to make, therefore such instances are very rare and uncommon. But in large tracts of level land, where lakes or morasses have been formed, and which cannot be drained by cutting open drains, or driving levels through rocks, but at an expence for which the lands when drained would never compensate, all the above instances warrant experiments being tried with bore rods, which if not successful, may be tried at little expence.

Paring and Burning.——I saw but one instance of this practice in the whole district, and on light, sandy, thin stapled land, where Ducket's skim plough would have been much more usefully employed: I therefore leave it to my able coadjutors to immortalize themselves by reprobating the practice, where it is more prevalent; fearful as I am, that a further discussion of the subject would betray me into expressions incompatible with that measured language, which it is both my duty and inclination to adopt when I address this Honourable Board.

Woodlands.——Where the soil varies so much, where the greatest part is under the plough, and where dressings are found to suit the poorest soils, this county may be said to be well wooded. Independent of the woodlands contiguous to the seats of gentlemen, nearly the whole county is interspersed with small woods and copses, and these generally occupy the most barren and gravelly spots, which are well adapted to the quick growth of underwood. The woods are well fenced in, when cut, and preserved from the bret of cattle, and also drained, if necessary.

As the growth of hop poles is not attended to, the woods are cut in succession, about every ten years, and the straight sapplings of oak, ash, beech, sallow, birch, poplar, hornbeam, or any other wood, either from the stub or seed, are preserved till the succeeding fall, and then a due succession of the oak, ash, and beech seedlings are preserved, the rest are cut down and split for sheep flakes. Great part of the underwood is hazle, and a conversion of the straight hazle rods into smart hoops for the West India trade, would be more to the advantage of the growers, than into charcoal and firewood; but this conversion is not much understood or followed in Hertfordshire. A good plant of thriving underwood may be averaged at 20 shillings per acre per annum.

There is a considerable quantity of compass timber, fit for the navy and inferior shipping, but not much plank timber, in this county: the timber of the best quality will be found on the clay soils; a large supply will be brought to the London market by the grand junction canal. I have seen naked oak timber lately sold, near Berkhamstead, and in the line of the canal, at £ 3. 10s. per load, which would be worth, at any of the King's or merchants yards, at least £ 5. 10s. per ditto. Few knees are now used in line of battle ships; but knees are used in the construction of merchant ships, frigates, and sloops of war, and standards in that of all ships of superior force; the Hertfordshire hedge row timber will supply these in abundance.

When a substitute is found and used for the Hertfordshire top dressings, the practice will be still incomplete without sheep folding, and this cannot be properly done without flakes or hurdles. In Wales little or no care is taken to preserve what little underwood grows there, from the bret of cattle. In Scotland there is little or none to preserve. The now spirit of enterprize in the counties of Glamorgan and Monmouth promises a supply of bar iron for home consumption and exportation; the ore is smelted with coal; but good bar iron cannot be made without charcoal; and the now bloomeries consume more charcoal than the neighbourhood grows; the best and speediest way of planting woods is with the plough; the worst soils, if tolerably dry, will

grow underwood for charcoal and hurdles, and much better underwood than timber. A piece of heath or hungry clay land is inclosed: though I am no advocate for paring and burning, a singe may be necessary here; the heath is burnt, the land on which it grows is then ploughed, and this tilth when dry in the summer, may be burnt as it lies on the ground, and not heaped together: a crop of oats is sown in the spring on a second shallow tilth, and acorns, ashkeys, beechmast, or the seeds of any other timber, sown with the oats, and well harrowed in. It is the custom with some wood planters in this way, to pull the oats when ripe; I recommend cutting them with sickles, and as high as possible, and carrying them off the ground in sacks, and no carts or cattle permitted to come on the ground: the long stubble will shelter the young plants in the winter; when the crop is sown, furze seed may be sown to the width of about 10 feet round the outside of the field, this will, in two or three years, make an additional fence: great care must be taken to keep out all sorts of cattle for the first eight or ten years, and for the first two years, particularly in the winter, the ground must be hunted with dogs to drive out hares and rabbits, for they will eat up the young oaks to the roots. Spanish chesnut trees will thrive in the poorest soils, and the timber is valuable: Scotch firs, or other trees, may be planted from nurseries, or any of the trees in the field, where too thick, may be transplanted into the vacant parts. The above is the best way of planting oaks, as they should never be transplanted; the sapplings draw one another up straight; they may be thinned from time to time, and the stubs of those that are cut produce the future underwood.

Provisions.——In all the counties round London provisions are dearer than in the metropolis, and much of the provisions with which the poor are fed, are brought from thence, independent of groceries. Yorkshire bacon, generally of the worst sort, is retailed to the poor from little chandlers shops, at an advanced price; bread is retailed to them in the same way.

Farm Houses and Offices.——The Hertfordshire farm houses and offices differ much; many of the houses are old buildings, and

the *quondam* residences of the owners of the soil, constructed without taste or convenience, and situated at one side or end of the land held therewith; the offices, and particularly the barns, are in general good, and some of them capital. It is much easier to describe and point out what farm houses and offices should be, than what they are.

This healthy and beautiful hill and dale county, studded nearly all over with little woods and copses, the requisites of chaste landscape, is highly susceptible of the embellishments given by simply elegant farm houses and cottages, such as the annexed sketch represents; and which if situated on the brow of a hill, backed by a copse, and rising gently to a south aspect for near half a mile from a high road, and surrounded by about 400 acres of good arable land, and water at a small depth, will have every requisite advantage.

In the distribution of the house, the size and situation of the kitchen is first considered, it is 25 feet by 16 feet, and 13 feet high, and well lighted, no outer doors opening into it; and it is centrical and convenient to the parlours, pantry, dairy, scullery, brew and bakehouse; the cellars under the house, and the sinews of industry in hay time and harvest therein contained; here the farmer, his family, and servants, generally eat their meals, and sit comfortably and contented in the winter evenings, when the labours of the day are over. The windows look on the farm-yard, and what is transacting there: the parlours are ten feet high, and of the dimensions marked in the plan; and four good bedchambers and two garrets above, in the centre part of the house; the right wing is the brew and bakehouse, the fire-places of the brewing copper, the copper in the scullery, and mouth of the oven, are in the brewhouse. The separate flues from the kitchen, parlours, and bedchambers, and the flues of the coppers united under the wide chimney-cap in the brewhouse, are turned up in the party wall into one stack, seen in the elevation of the back front. The left wing is a granary, the floor of which lies three feet clear of the ground, and a bedchamber above it for men servants. The joists of the bedchamber floors above the kitchen

and pantry extend in part end ways through the walls, and over the scullery and dairy, to support leaded cisterns for the reception of rain and spring water, as shown in the back elevation; water pumped up into the cistern above the scullery will, if conveyed from thence in lead pipes, supply the kitchen, scullery, and brewhouse; the ale and beer may be conveyed in like manner from the brewhouse into the vessels in the adjoining cellar. The cistern above the dairy may be filled with rain water, conducted from part of the house in fillet gutters. The extreme buildings with pediments, are hay houses, or places to lodge hay, potatoes, or any other provender for cattle, to be carried from thence either to the racks in the stables, or stalls in the ox and cow-houses, to prevent waste. These hay houses, or rooms, are about seven feet high, with pigeon houses above them; the floors of the pigeon houses terraced, and entered from without by a moveable step ladder, and doors on the construction of pitching doors. These buildings should be constructed with brick or stone, and tiled or slated. The offices between the house and the hay or pigeon houses are sheds, and should be pan-tiled. All the other offices may be built with timber, on brick or stone underpin, and weather-boarded and thatched.

The proper construction of barns for the preservation of corn from vermin, has of late become a question of some importance, and induced me to show, in part, the construction of insulated barns, or barns built on pillars or piers; and in my opinion, better adapted to a farm-yard, than any on that principle I have yet seen. The annexed barns are under one continued roof, and the roof descends, and is continued over the porches, at the ends of the threshing-floors, so that there are no valley gutters, and the barns are thatched to keep out the drifts of snow. The bays are filled by or through pitching doors at the ends, and on each side of the covered passage between them, which is 10 feet wide, and receives a loaded waggon, for the double purpose of unloading, and sheltering it from rain when loaded. Corn may be also pitched into the barn doors, to facilitate the filling and making up the mows on each side of the threshing-floors. The scantlings

which support the principal rafters, stand upon the ends of the the cross girders, and should be secured by knees bolted to them and to the tie beams, to prevent the barns from racking. The floors are an additional expence, and require strength: the scantlings of the girders should be a foot square, and of the joists 8 inches by 4 inches at least, and the floor, inch and a half or two inch deal, the threshing-floors are oak plank.

Nature of Leases.——I freely confess that this is a question which I am not prepared to answer, though I am, and long have been, in the almost daily habits of seeing and perusing leases made of lands, in every part of England. I trust I have in the sequel thrown some lights on this subject, and to which I beg leave to refer.

Commerce and Manufactures.——The commerce of Hertfordshire is in the produce of the soil, and the only manufacture, properly so called, therein, is perfectly analogous thereto, and confined to the women and children of Dunstable, Luton, and that neighbourhood. It is the straw manufactory. Great quantities of malt is made about Ware, Hertford, and that neighbourhood, principally for the London consumption. There is a cotton mill near St. Albans, for making cotton candlewicks, and one on a more extended scale near Rickmansworth: it follows of course that the effects on its agriculture must be good.

Societies instituted for the Improvement of Agriculture.——Many of the Hertfordshire farmers do better, they individually set the example. If any society or societies for the improvement of agriculture has or have been instituted in this county, I have not been so fortunate as to meet with, or hear of them.

Obstacles to Improvement.——The penetration of this Honourable Board has, no doubt, anticipated that opinion, which my duty to them and to the public, now forces me to give in plain and pointed language. I trust I have no prejudices, and though my powers are weak, my wishes are always to inform, never to offend. To point out the obstacles to improvements, and the manner in which they can best be removed, is the last and most important part of my task. The mischief done to the

public, by the now subsisting obstacles, is of such magnitude, that I question whether the extra benefit resulting from an inclosure of all the commons and wastes in the kingdom, would compensate for the same; therefore the fable must be highly coloured, the application is no business of mine.

Where the land is tithe-free, and occupied by the owner, his interest (if he knows it) and that of the public exactly tally; the land will be brought to and continued in a proper state of manurage: it is possible, in such cases, that the public may have the best of the bargain; and land thus circumstanced, though of the very worst quality, be mended for ever, and at an expence, for which that mendment will never compensate to the improver, who, actuated by a hope of future gain, which may never be realized, or the honest pride of decorating his rocks and sands with the cheerful face of smiling plenty, will build his tower before he calculates the expence. But if the rector is to share crops, he will balance, a few plain figures will settle the profit to the rector, and the loss to himself; the lands will remain uncultivated, and the public never be benefited by the crops they would otherwise yield. In every case where tithes in kind are payable and insisted upon, improvements slacken. This general rule will be found without exception, and a great majority of the Hertfordshire rectors are so sensible of this important truth, that they are satisfied with moderate compositions; the measure thereof following the improvements with a slow and steady pace, while a living profit to the improver is constantly kept in view. Were it not for this prudent moderation, there would be an end to boneing, chalking, top dressing, and the other very expensive improvements of the county.

A numerous tenantry has long held by lease or otherwise, under a respectable family, on whose honour they could rely. Where the evils complained of in bargains between landlord and tenant, and where a course of husbandry often prescribed, which in many unforseen cases cannot be pursued, without injury to all the parties concerned, did not exist, the rector always copied the example of his patron, and the lands were kept in a proper state

of manurage. The property so held and circumstanced, like the fall of empires, falls into the hands of a new landlord by purchase. He is too wise to be guided by the experience of others, and is absurd enough to give out that he means to grant no fresh leases: he is accompanied with a rector, who insists on extravagant compositions, or tithes in kind. The tenants at will immediately cross crop, and continue that practice till they are turned out; and they whose leases are nearly expiring, farm accordingly, or submit to unreasonable restrictions, and an advance of rent, to obtain a few years longer term: but as these restrictions, and all human laws have the same source, they have also the same fate; if mankind were perfectly virtuous, neither would be necessary, or wanted. The tenant avails himself of this addition to his lease, to wear out what mendment he formerly put into the land, and having accomplished this object, quits the farm at the end of his lease.

Having thus given, as I hope, a due preference to landlords and rectors of a certain description, I shall endeavour to match them with tenants. A farm is to be let to a tenant at will, at a certain annual rent; a farmer who really has sufficient property, no matter how he acquired it, views the farm, and perceives that something is still left to be taken out of the lands therein; he considers that he is to be tenant at will, therefore under no covenants or restrictions as to his cropping, and that he can leave the farm at any time, giving six months notice prior to the quarter-day on which he may enter; therefore agrees for the farm. He does not condescend to bestow a thought on the rector; he may take his tithes in kind, if he thinks proper, as the dung to be made from the straw thereof would be no object to a farmer of this sort, but he will give the rector all the trouble and hinderance in his power in the collection of the tithes, and cheat him if possible. Should the rector happen to be so simple as to bring an action on the statute against this bird of passage, for the value of tithes *literally substracted*, he will take care to make the tithes pay the expences incurred in foiling the rector as long as he can. In two or three years, after he has commenced tenant, he will apply to his land-

lord, who possibly by this time may have smelt a rat, and tells him, his farm is too dear, and he can hold it no longer without a lease, and a diminution of rent; if they do not agree, he will apply the plough to the meadows and old pastures, if any, in the farm, and make sure of one good crop of oats, before he gives his landlord notice that he means to quit it. If the landlord, to save his meadows and pastures should agree to his terms, he must give him also a good marketable lease, and which he assigns as soon as he can, provided he gets a premium to his liking; for farmers of this sort never farm, their practice is the very reverse: covenants are made to bind them, for the same reason that halters are made to hang rogues, but with much less benefit to society.

The honest and industrious farmer sees and laments the necessity of covenants between landlord and tenant, and would cheerfully comply with them, provided they did not frequently, in conjunction with seasons and circumstances, which human prudence cannot foresee, militate against his own, and the public interest.

A tithe-free arable farm, of unseasonable, or poor, light soil, or any soil, if out of condition, must be improved by money, and upheld by experience and industry, and if the annual rent or value is £ 100. the capital of the occupier should be £ 600. at least, in addition to a competent knowledge of his profession, and a lease to protect his improvements: the sooner the farm is brought into a proper state of culture, the better it is for the occupier and the public. It is most likely, admitting no accidents intervene, that all his ready money may be expended before the farm makes a suitable return, in that case a little indulgence from a landlord, so amply secured, may be necessary, and should never be refused; the tenant will not wish to deviate from any judicious course of husbandry that has been prescribed to him, except when that course is deranged by the immediate interposition of providence. In such cases a different crop to that which has been sown in rotation, and has missed, should intervene, and the choice of the intervening crop left to himself. This choice may not meet the approbation of all parties, but it will shorten the exceptions thus rendered necessary to the covenants in a lease, and the land will

not be suffered to run to weeds, the worst of all possible crops, while the landlord and tenant are settling punctilios.

The tenant will continue a judicious and profitable course of husbandry, as long as the returns are insured to himself; but towards the last years of his term he will relax, if an adequate reward is not held out to insure his perseverance, and if that reward is nearly equal to any advantage he could reap by pursuing a less praise-worthy conduct, the injury to the public would be avoided, the succeeding tenant would cheerfully disburse that reward, increase the rent of the farm, if really worth an increase, and take the stock, &c. as between incoming and outgoing tenants, at a fair value; and at the end of his term would again relinquish on the same conditions.

All lawful compacts between man and man may be made certain, and to last for the time agreed upon, provided the contracting parties are competent. On this principle a farmer bestows his property and time in the cultivation of the estate of his landlord, who, for certain considerations, has, by a valid agreement, delegated all his powers to his tenant, excepting those expressly mentioned and excepted in the agreement. Thus far the bargain is sure, and the tenant runs all risks of loss of crops, stock, &c.: but if the land is not tithe-free, or subject to a modus only, a third person has an interest in the produce thereof, and if that third person is an ecclesiastical rector, he is not competent to make a certain agreement for his interest, were he so disposed. The tenant has the additional risk of the rector's avarice to encounter, and improves accordingly. When an unreasonable composition, or tithes in kind are taken, the tenant converts to pasture the lands which produced them, if he finds it his interest so to do, and the best system that can be devised, for the benefit of the public, thereby receives a mortal stab; for clover, hay, potatoes, turnips, cinquefoil, tares, the whole class of pulse, and intervening meliorating crops, whether for the purpose of feeding the tenant's cattle, or otherwise, are subject to tithes in kind, when severed from the soil on which they grow.

If the rector, or his tithe-renter, or gatherer, is of a litigious

and troublesome disposition, which the tithe laws, as they now stand, put it too much in their power to indulge, the evil of tithes in kind is increased to an alarming magnitude. In rainy and uncertain harvest weather, when prudence dictates the housing or stacking the crops immediately from the scythe or sickle, to avoid the consequences of the season, they must be shocked or cocked before the farmer can give the rector, or his petty tyrant of the parish, notice to set out the tithe; he must wait a reasonable time for his arrival on the spot, before he will venture to decimate *ex parte*; in the mean time a sudden and heavy rain outstrips the slow-paced tithing-man, and both crop and tithe are much injured or totally ruined thereby. If the tithing-man does not arrive in the usual time allotted to him, the farmer leaves the tenth shock or cock, and carries the rest of the crop at the risk of a lawsuit. How frequently in such seasons do the tithes, rotting on the ground, meet the eye of the traveller in every part of England.

There are some soils so very barren (Bagshot Heath for instance) that it is a matter of great doubt whether a cultor thereof could live by the produce of his labour, if he had neither rent, tithes, nor taxes to pay out of it; it is notwithstanding for the benefit of the public that such soils should be cultivated, for there are seasons which render the crops thereon valuable to the public, when crops on better lands fail: the Hertfordshire rectors are in general so well satisfied of the truth of this maxim, that they are contented with reasonable compositions, in lieu of tithes in kind; but there are exceptions to this general rule, and where these exceptions occur, much injury is sustained by the public, as the growers are thereby restrained from using the very expensive annual *foreign* manures, the great source of the singular fertility of this county, and, as I conceive, of the superior quality of the grain it produces: for I am of opinion, the thinnest and lightest staple, particularly on chalk, produces the best and heaviest grain when properly forced with manure—hence the species of wheat called the Hertfordshire whites. The Hertfordshire farmers set the example of spring or top dressings, which are brought from

distant parts, principally from London, and therefore expensive: they are peculiarly applicable to light lands, and their effects end with the crops on which they are sown. This accounts for the moderation of the Hertfordshire rectors in general, and these dressings would no doubt produce good crops on all light, sandy, or gravelly thin lands, and soils barren to the generality of seasons, but if a tenth thereof is taken from the grower, he will soon be ruined. In remarkably wet seasons the public derives bread from such lands, therefore if obstructions are thrown in the way of their improvement, it is incumbent on the legislature to remove them. The drill husbandry, as practised by Ducket, is peculiarly calculated for the lightest soils; but scarce an operation in nature within the province of agriculture, escapes that wonderful self-taught farmer—I have therefore stepped out of my district to Esher, and given him and his light sandy soils a chapter to themselves.

The hamlet of Woodham in the parish of Chertsey, in Surry, is towards the upper part thereof barren to a proverb, it partakes of the soil of Bagshot Heath, and of that light, sandy, and gravelly tract which runs through Hampshire into Dorsetshire, and with some intervals of better land, across the kingdom: but in rainy seasons, when the heavy crops are levelled on better lands before harvest by a deluge, and in the elegant language of Ovid,—*strata jacent vota coloni*; the crops in the hamlet of Woodham, though short, may possibly be among the most valuable in the kingdom, and the growers *there* value themselves accordingly. In such seasons if a Woodham farmer, when at market, or from home, is questioned as to his residence, his answer is bold, and coupled with a question:—*Woodham; where think you?* but in general, *Woodham; God help me!* is his very humble answer, and indicative of his crops and his case. A considerable part of that extensive tract of common or waste land in the parish of Chertsey, Cobham, &c. containing many thousand acres, would produce good crops in a dropping year; and nearly centrical to these commons is a considerable tract of excellent deep peat earth, particularly in the hamlet of Woodham, and lands of the late Sir Thomas Sewell. The commons and wastes in the parish of

Cobham are now inclosing, and no doubt much may be done here with Hertfordshire top dressings and peat ashes; but the rector must not cut too deep into the produce, otherwise the improvements will be very feeble.

It is a most equitable rule, that what concerns all should be approved of by all; the rule of tithing is approved of by nobody; and the respectable body of the clergy, particularly those who reside on their livings, are most exposed to its baleful effects; they are aware of the evil, and lament their want of powers to apply an adequate remedy, they are not competent to make certain agreements for a term of years. The tenth of crops produced by land cultivated, as it may be and should be, cuts too deep into the farmer's profits, and the clerical rectors have not yet been enabled to adopt any equitable mode by which their rights can be ascertained, and therefore recur to tithes in kind. If a crop of garden pease or beans are gathered when green, and sold, both the rector, if impropriate, and vicar claim tithes of one and the same crop, and threaten to recur to law for the recovery thereof. If the farmer gives tithes to the rector instead of the vicar, or *vice versa,—incidet in Scyllam cupiens vitare Charibdim*; and this is actually the case in the parish of Sunbury in Middlesex, where tithes of green pease have been, time out of mind, given to the rector impropriate, and now for the first time claimed by the vicar.

The consequences of tithes in kind taken by the clergy, are continual disputes and bickerings between them and their parishioners; the farmers grumble, slacken in their improvements, give their spiritual guide all the trouble in their power while collecting his tithes, and cheat him if they can; he recurs to law, and soon becomes the most unpopular man in his parish; the church is deserted, the flock rapidly emerge into a state of nature, or are led away by the cant of knaves and blockheads. The philosophy of religion is spurned with the professor, or bartered for gloomy superstition. These are notorious melancholy truths, and whoever attempts to refute them, must be drove to the pitiful necessity of reasoning in the face of a fact.

I highly respect the learning and virtues of the clergy; it is a

primary wish of my heart to break asunder the Gothic chains with which they are bound, and I call upon all honest men to assist me. The Reformation is a precedent in point; I cannot have a better; celibacy was thereby abolished, and the clergy in part restored to their natural rights; they were permitted to marry and become the fathers of perhaps a numerous offspring. Had the clergy been also permitted to farm lands, a privilege which their local situations peculiarly entitles them to, and not been confined to the narrow limits of their glebes, they would thereby have been enabled to employ and provide for their children. Agriculture in the hands of men of learning and abilities, would long ere now have been reduced to a science; and farmers of this class would have known and avoided the consequences of throwing impediments in the way of others engaged in the same pursuits.

Necessity, combined with the wretched stipends, in many parts of Wales, compels some of the clergy there to turn farmers in defiance of law, and bring their small capitals into action, before they are expended in a maintenance, which their clerical profession does not afford. I have seen, and can give ample and honourable testimony of the public good resulting from the examples given by these truly apostolic teachers, in a country where practical examples of good husbandry are much wanted. I traversed the county of Herts in quest of able farmers, to present them to this Honourable Board, and Fame led me by the hand to the rector of Hatfield. The birth, talents, and connections of that gentleman, give him a commanding prospect of his duty; his glebe contains one hundred acres, and enables him to farm with effect, and within the letter of the law; his rectory, in point of revenue, is a little bishoprick; and his farm, in point of neatness and fertility, a little paradise, by his judicious improvements. What a happiness it is, for the husbandry of this extensive parish, that their rector is a good farmer! Many rational and valuable improvements might have been expected from many other clergymen, had not the door to agricultural practice been shut against some of the ablest men in the kingdom.

The investigation of the evil leads to the remedy. Empower

the clergy by law to farm lands, and grant leases of their tithes for 21 years certain, if they think proper so to do. If they neglect the duties annexed to their sacred functions, by their attention to agriculture, or any less worthy pursuit, punish them; but let not the measure of their punishment extend to a total deprivation of one of the most rational amusements the human mind is capable of enjoying; for, be it remembered, this primary art in the catalogue of peace and plenty, is cultivated by the first Estate of the realm.

That the interests of the church may not suffer by collusion, let the power be vested in the patron and bishop of the diocese to appoint competent persons, to settle and approve the rent to be given, and to witness the same, by being parties to the lease or leases: the clergy to have preferable powers of distress in cases of non-payment of rent, if the land owners do not for their own, and their tenants benefit become the lessees. The consequence would be, the clergy, or a great majority of them, would cheerfully acquiesce, though left to their option, and when emancipated from at least a questionable restriction, if they do not avail themselves of the privilege of farming, they would have a more natural attachment to those who did. The tenant could then make a sure bargain at the outset with his landlord and rector, and give really more rent for the tithes than they could then be worth, the trouble and expence of collecting considered: and thus exempted from all uncertain demands, and assured of an adequate compensation at the end of his term, he would put and keep his farm in a proper state of cultivation, and the lands remain in an improved state, instead of being beggared by cross-cropping and weeds, in the last three years of the lease, and again requiring fallows, attended with the loss of crops to clean them, at an expence much greater than the amount of the profits resulting from the now latter conduct of tenants. By these means, farming will become more respectable, and, of course, more studied; and lands kept in a constant state of increasing manurage: and by these means, and these means only, the exertions of this Honourable Board will be crowned with success.

Rate of Wages, &c.——Great part of the labour of farmers is performed by annual domestic servants, whose labour commences and ceases at no stated hours. Day labourers work from six to six in the summer, and from seven to five in the winter; their usual wages is eight shillings per week in the summer, and six in the winter. Labour performed by the great or piece, is hedging or ditching, by the 18 feet or statute pole; timber falling, by the load (50 cubic feet); cutting underwoods, by the cord of stackwood, and brush fagots by the hundred; threshing and winnowing, by the load or quarter; and mowing or shearing, by the acre. Much of the harvest work of that part of the county next London is performed by labourers whose residence is in distant parts, and where the harvest is generally later than in Hertfordshire. The price of hay and corn harvest work, by the piece or acre, differs much in different years; in wet and uncertain harvest weather, or when the crops in general ripen nearly about the same time, or ripen together, the price of labour, by the day or piece, increases; labourers hired for the harvest month have generally food, lodging, and two guineas for that time. The wages of annual servants are nearly as follows; a carter or ploughman, from 6 guineas to 9 guineas; a thresher or tasker, from 6 guineas to 7 guineas; their task is 5 bushels per day, and they are paid at the rate of 1 shilling for every five bushels extra, and 1 shilling per load for binding wheat straw for market. Boys from 2 to 4 guineas, and maid servants about 5 guineas. Day labourers employed the whole year by one master have 7 shillings and small beer, and 9 shillings and ale, for one month in hay time. The price of piecework is nearly as follows; hedging only, about 2½*d.*; hedging, scouring, and edging the ditch, 6*d.*; hedging and cutting a new ditch, 2 feet wide at top, one foot at bottom, and one foot six inches deep; one shilling per statute pole. Falling timber, 1 shilling per load. Fagoting, 2 shillings per hundred. Barley and oats are threshed by the quarter; wheat, pease, and beans, by the load: barley, from 1*s.* and 4*d.* to 1*s.* and 6*d.*; and oats, 1*s.*; and from 1*s.* to 1*s.* and 6*d.* for wheat; and 1*s.* for pease. Clover seed, 5*s.* per bushel. Reaping wheat,

from 5 *s.* to 7 *s.* per acre, and sometimes more, if much laid; and 2 *s.* per acre for bending, with ale and small beer; and 1 *s.* and 8 *d.* per acre, for mowing oats and barley.

Price of Provisions.——The now actual state of the peasantry in the kingdom (January, 1795), requires the particular attention of the Board of Agriculture. I hasten with pleasure to state a permanent remedy, pointed out to me by a gentleman whose powers have long been exerted to counteract the conduct of their oppressors, and to provide a steady and reasonable supply of bread at all times for the metropolis. The measure will best shew the virtues of the man, and give him and them to the world and to posterity, with that popularity which they deserve. He advises, that a sufficient quantity of the leading articles of life should be purchased by the churchwardens and overseers of the poor in every parish, or three or four adjoining parishes, at such times as they may be bought for the most reasonable price, and stored for their use. In the enumeration of these articles, he begins with bread, the staff of life. A crop of wheat, if well got in, and stacked or housed, will keep in the straw, if preserved from vermin, for seven years—the period of the Egyptian famine.—This wheat to be threshed, ground, and made into wholesome brown bread from time to time, as it is wanted for their consumption. Fuel, bacon, cheese, candles, a few groceries, or any other articles which may be considered useful to cottagers, may, in like manner be purchased and stored for their use. Pease or other hogmeat may be provided for cottagers who choose to rear and fatten their own pigs. To wean them from alehouses, the bane of the poor, barley must in like manner be provided and stored, made into malt, brewed into wholesome beer, and delivered to them in small quantities; but subject to no more duties than beer brewed in and for the use of private families. The produce of the still to be totally out of the question. I much fear this poison is now frequently resorted to, to damp the calls of nature.

To provide a fund for these investments, the farmers and those subject to poor rates, will find it to their interests to contribute

beforehand, either in money or the above articles, *ad valorem*, the cottager and day labourer, instead of money, to receive on Saturday nights a ticket from his employer to the overseer or storekeeper, who will supply him with what articles he may want, to the amount of his wages, at prime cost, for the use of himself and family.

The investments to be directed by a committee of twelve respectable parishioners, including the churchwardens and overseers, and with powers to meet weekly or monthly in the vestry to hear and redress complaints.

Had this measure been adopted only four years ago, great part of the quantity of grain since exported, would have remained for the use of the poor, and not subject to the control of the dealer, the landed interest would have been greatly benefited, and the price of the poor man's loaf now tallied with the price of his labour.

The great labour of agriculture, commerce, and protection from foreign enemies, rests with the hardy peasantry of the country; and obstacles to the promotion of these great national objects are removed in proportion to the protection given to, and consequent increase of that peasantry. Every child that is born, is an acquisition to the state, for which reason more attention should be paid to the rearing of the deserted and orphan infant poor. I do not wish to arraign the methods now adopted; but the streets of London afford melancholy proofs that parish officers consider these very unfortunate objects of humanity, a heavy burden, and therefore get rid of them as soon as they can. Such infants, particularly in country parishes, should be consigned to the care of the most motherly cottagers in the parish or neighbourhood, who have no children of their own, accompanied with an adequate maintenance and encouragement. While a nurse of this description is rearing the tender twig, it frequently winds round her heart, and the mutual affections of mother and child grow up together in these strangers in blood :—when the child is able to earn a subsistence, it cherishes the idea, that it has a home, and which it will endeavour to uphold.

Sound reason suggested to the childless ancients, the policy of adopting infant orphan sons and daughters: friends, companions, and protectors to their declining years, were thereby obtained, on whose affection and gratitude they could rely. Such was the steady affection of these children to their parents by adoption, that in process of time the experiment was tried on those of a different age and class in life, with a view to make friends of enemies; but this latter experiment did not always succeed.

Roads.——Good roads in a corn country facilitate the agriculture thereof, as the crops are thereby conveyed to market, and foreign manure returned by back carriage. The roads in Hertfordshire are in general excellent, good materials to mend them abound every where; the sections of the great roads are curved, and rise in the middle about one foot in thirty; the timber trees and hedges towards the south sides thereof are lopped and kept low, that the sun may dry the roads. This is a practice which should be adopted every where.

Conclusion.——When ecclesiastical rectors are enabled to grant leases, and tithes in kind are commuted or arranged in a manner advantageous to all the parties concerned in them; and when the due culture of lands, at the latter end of a lease, meets a reward; the inclosure of commons and wastes, the increase, protection, and steady loyalty of the hardy and useful peasantry, and the promotion of agriculture, will go hand in hand, and these kingdoms will enjoy new and almost inestimable sources of happiness and prosperity.